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Lyons en Hospital

THE

Medical

AND

CHIRURGICAL REVIEW;

OR COMPENDIUM OF

MEDICAL LITERATURE,

FOREIGN AND DOMESTIC;

CONTAINING

A Copious Account of New Publications

IN

MEDICINE AND SURGERY.

TOGETHER

WITH A VARIETY OF MISCELLANEOUS INFORMATION

RELATING TO THE

DIFFERENT BRANCHES OF MEDICINE,

AND THE

SCIENCES CONNECTED THEREWITH.

----------QUÆ NON FECIMUS IPSI
VIX EA NOSTRA VOCO------ *Ovid.*

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THE

No. XLIX.

THE

MEDICAL AND CHIRURGICAL Review.

JULY, 1802.

ART. I. *Annals of Medicine for the Year* 1801, *exhibiting a conciſe View of the lateſt and moſt important Diſcoveries in Medicine and Medical Philoſophy. By* A. DUNCAN, *Sen. M. D., and* A. DUNCAN, *Jun. M. D. &c.* 8vo., 548 pages, vol. I., luſtrum II. Edinburgh, 1801.

THE firſt and largeſt part of the volume before us is devoted, as uſual, to the analyſis of ſome of the moſt important publications of the year. With the greater part of theſe our readers have already been made acquainted; the reſt will come under our notice in due courſe. We paſs on, therefore, to the ſecond ſection, containing original medical obſervations.

The firſt is, *A Singular Termination of a Caſe of Enteritis. By Dr.* Thomas Sanden, of Chicheſter. In this caſe, the ſymptoms of iliac paſſion took place and continued without abatement till the tenth day, when evacuation by ſtool was had, and a gradual ceſſation of all the ſymptoms followed. On the fifteenth day, the patient paſſed by ſtool a ſubſtance, which, on a careful examination, was found to be a portion of ſmall inteſtine, meaſuring, in its whole length, at

leaſt twelve inches. Of this, the ſeparation had taken place very obliquely at one end, and ſomewhat obliquely at the other; ſo that in the part ſeparated, the inteſtinal tube was complete for the ſpace of only about five inches. To this a portion of meſentery was attached.

Every where this diſcharged inteſtine was firm in its texture, and differed from its natural ſtate only in being of a darker colour. The edges, where the ſeparation had taken place, were ragged and irregular, and in ſome parts (to the length of an inch or two) were thickened into a white fleſhy ſubſtance, of firm conſiſtence. Within the inteſtine, and about the middle of that part of it which was entire, a ſeed of an orange was found, not at all adhering, but very liable to fix its point (which was longer and ſharper than uſual) into the inner coat of the inteſtine; ſo that it could not, in one direction, be puſhed along the ſurface of that coat without great difficulty.

There can be little doubt, the author obſerves, that in this caſe an extenſive intus ſuſceptio had taken place, with conſtriction ſo violent, as ultimately to produce a ſolution of continuity, with a degree of adheſive inflammation, ſufficient for the purpoſe of uniting the divided parts, and at the ſame time ſo moderate as to admit of reſolution.

2. *Hiſtory of a Fracture of the Skull, with very conſiderable Injury to the Brain, terminating in complete Recovery, without any Operation. By Mr.* John Goodſir, *Surgeon*, Largo. The ſubject of this caſe was a child, five years of age, who was gored by a bullock, the temporal bone being perforated, and a quantity of the brain forced out. Though the ſymptoms were formidable at firſt, they gradually ſubſided; and about the third month, a thin membranous ſkin covered

covered the whole wound, though the bone continued to be deficient. The child remained in perfect health after the wound healed up.

3. *Cases of Chorea Sancti Viti, terminating successfully under the Use of Zinc. By Mr.* David Alexander, *Surgeon,* Montrose. Three cases are here related, which, however, do not differ in any important particular from others of a similar kind to be found in the modern records of medicine, and in which the same remedy has been successfully used.

4. *A Letter from Mr.* R. W. Taylor, *Surgeon, London, to* Dr. Duncan, *giving an Account of two Cases of Vaccina, attended with Eruptions.* It is of some consequence to mark the eruptions which occasionally take place in cow-pox, as they properly make a part of its history. From the following description it appears, that, in the present case, the pimples bore little or no analogy to the small-pox.

'The eruption, which appeared in the above described two cases, consisted of large red pimples, nearly as large as half a middling sized pea, rising above the surface of the skin, and hard to the touch. These pimples were perfectly distinct, and never shewed the least tendency to unite with each other, or become confluent, as it is termed, in the small-pox. The cuticle, between the pimples, remained of its natural colour; nor could I perceive the least redness beyond the base of the pimples. The number of pimples in Derry was about 100. Watt had above 150.

'This eruption disappeared, as before stated; and not a single pimple, except the one formed by the puncture on the arm, contained the smallest quantity of fluid, but receded as they came forward, perfectly hard and compact.

'The ulcer, also, on the arm, at the punctured part, although at one time it put on a very ill-conditioned

appearance, yet healed very readily, without any local application, except the cold water.

'These children did not experience the ſmalleſt inconvenience, after the eruption had made its appearance; but ate, drank, ſlept, and played with their companions with their accuſtomed good ſpirits.

'Twelve months have now elapſed ſince theſe two children were inoculated; during which time they have been repeatedly expoſed to the infection, both of the natural and inoculated ſmall-pox, without the ſmalleſt appearance of complaint.'

5. *Extract of a Letter from Mr.* John Livingſton, *Surgeon of the Cirenceſter Eaſt Indiaman, to Dr.* George Kellie, *containing ſome Obſervations on the Benefit derived from Compreſſion by the Tourniquet, in the Removal of Rheumatic Pains.* 'Having, in the courſe of a voyage to China, had frequent opportunities of following the method recommended by you, of compreſſing the large arteries by means of a tourniquet, for the removal of certain rheumatic complaints, I am happy to inform you, that, in almoſt every inſtance, it has been attended with the moſt complete ſucceſs. By following your inſtructions, in producing compreſſion of the arteries, I have in a number of inſtances been able to give almoſt immediate relief to men labouring under a painful diſeaſe; and, what is of very great importance to ſhips employing few hands, a part of their ſtrength (which can often be but ill ſpared from the duty of the ſhip) can, by this very valuable diſcovery, be enabled in a few hours to return to work.

'Of ſeven caſes, recorded in the Cirenceſter's Medical Journal, four complained of ſevere pains acroſs the loins, and the other uſual ſymptoms of lumbago. Their complaints were relieved in a very ſhort time, from fifteen to twenty minutes, and did not return.

'One

'One man, who had for ten days laboured under a ſevere acute rheumatiſm, had ſo far recovered as to be able to walk about on the fifteenth day. But very troubleſome pains ſucceeding in his knees and ankles, and daily becoming worſe, the tourniquets were applied, with the effect of removing the pains for a few hours. The pains, however, returned in the courſe of the night, but were finally removed by a ſecond application.

'Of the remaining two caſes: In one, where the pain was chiefly confined to one ſhoulder, which appeared ſomewhat red, and even painful to the touch, little benefit was experienced. The tourniquets were applied for the ſpace of twenty minutes, and a very profuſe ſweat was excited, which continued for twenty-four hours. In the other, it failed entirely. But the ſcurvy appearing on board three days afterwards, and having ſeized him, as well as ſeveral others, I was convinced that I had miſtaken ſcorbutic pains for thoſe of chronic rheumatiſm.'

For the mode of applying the tourniquet, and other circumſtances connected with the practice, the reader may refer to our 5th vol., page 55.*

6. *Obſervations on Cow-pox. By Dr.* Robert Hall, *St. Pancras, London.*

7. *Extract of a Letter from Dr.* Hall *to Dr.* Duncan, *Sen., containing further Obſervations on the Cow pox.* Theſe two papers contain nothing that will ſtrike our readers as new.

8. *Extract of a Letter from Dr.* John Rook, *of Montpellier Old Works, Jamaica, giving an Account of the Succeſs of Vaccine Inoculation in ſome Diſtricts of Jamaica.* The obſervations here made, ſhew that the new inoculation has been performed in the

* See alſo vol. 8, p. 169.

Weſt Indies with a degree of ſucceſs fully equal to what it has obtained in our temperate latitude.

9. *Account of the Benefit derived from Vaccine Inoculation, in combating an Affection of a very different Nature, a ſingular Diſeaſe of the Right Arm. By Mr.* Robert Stevenſon, *Surgeon, Gilmerton.* The affection in this caſe was a painful ſtate of the whole arm, particularly aggravated on motion, and which reſiſted the moſt powerful remedies of various kinds. In proportion as the vaccine inflammation aroſe in the inoculated part, the original affection declined, and at length ceaſed altogether. The patient had ſuffered ſmall-pox rather ſeverely, ſeveral years before; yet the vaccine puſtule aſſumed the ordinary appearances, except that the action ſeemed to be more rapidly excited, and carried through its courſe. There were alſo ſome ſlight ſymptoms of general affection of the ſyſtem, accompanying the formation of the vaccine puſtule.

10. *Caſes of Vaccine Diſeaſe, communicated by Mr.* Ranken, *Surgeon, Douglas.* Theſe caſes contain nothing new.

11. *Account of a Deception with reſpect to Vaccine Inoculation. By Dr.* John Forreſt, *of Stirling.* In this caſe, the progreſs of the inflammation ſubſequent to inoculation was ſo premature, and it differed ſo widely in appearance from the genuine vaccine puſtule, that no cautious and well-informed practitioner could have been deceived with regard to it.

12. *Hiſtory of a Caſe of Imperforated Hymen. By Mr.* Francis Kæymer, *of London.* 'A lady, aged ſeventeen, for the ſpace of five months was afflicted with violent pains in the abdominal region, which continued in ſevere paroxyſms of ſeveral hours duration, recurring twice or thrice a week.

'During

'During the attack of these paroxysms, there was little appearance of tumor; but on their departure a sensible swelling was felt, of a moveable nature, and which seemed to change its situation, and to give the appearance of flatulency rather than any other cause.

'So violent were this lady's complaints, that a number of the first practitioners were consulted on her situation; and, from the circumstance of her having twice menstruated, as alledged by her friends, no suspicion could be entertained of the real cause of her disease. A variety of treatment, therefore, was pursued for her relief.

'On the supposition of flatulence, carminatives were ordered, which produced a temporary alleviation of her symptoms. The same effect followed the use of opiates, and even the warm bath.

'From the violence of the symptoms, her disease, I at last supposed, might originate from the state of the bladder; and, in order to ascertain this, I was induced to pass the catheter. In the attempt I met with considerable resistance; and, on examining with my finger, this resistance appeared to rise from a membranous expansion covering the entrance of the vagina.

'I could now have no doubt with respect to the cause of this lady's sufferings; and, communicating my discovery to Mr. Cline, who was then called in, we agreed to make an opening, through this membraneous expansion, into the vagina.

'On doing this, with a common lancet, an immediate discharge of a brown-coloured fluid, of the appearance and consistence of molasses, took place; which continued to run to the quantity of five pints.

'The aperture was kept open by a tent; and nothing particular occurred in the after-treatment unfavourable, or that merits detail.

'The lady is now in good health, has menstruated regularly since, and has had no return of any disagreeable symptom.'

The above caſe, as the author obſerves, is chiefly deſerving notice, as ſhewing how eaſily practitioners may be miſtaken in accounting for the cauſe of a diſeaſe, where they implicitly truſt to the report of the patient or her friends. From the ſituation of the preſent patient, it is obvious that menſtruation could not have taken place; yet it was ſtrongly aſſerted that it had twice done ſo.

13. *Account of a Caſe in which the Anus was wanting, ſucceſsfully cured. By Dr.* W. Kennedy, *of Inverneſs.* In the caſe of this infant, there was no appearance whatever of an anus. An inciſion was made about half an inch deep, and more than an inch in length; but without enabling the author to find the end of the rectum. He therefore continued his inciſion until he could turn the point of his finger within the pelvis. He then found the end of the gut round, and pointed like a cone, quite tenſe. An opening was made into it, and a vaſt quantity of meconium diſcharged. The inciſion was kept open by a ſponge, and the child afterwards diſcharged the fœces naturally.

14. *Account of Diſeaſes of the* 88*th Regiment, during their Paſſage to India, and at Bombay, from December,* 1798, *till June,* 1800. *By Mr.* J. Macgrigor, *Surgeon.* The obſervations here given will be found intereſting to practitioners in local ſituations, ſimilar to that here referred to; but they do not well admit of abridgment.

15. *Obſervations on the Uſe of the Muriate of Barytes in Scrophulous Affections of the Weſt Indies, and in a ſingularly painful Diſeaſe ariſing from the Bite of a Negro. By Dr.* S. Armſtrong, *of the Iſland of St. Vincent.* It is, perhaps, queſtionable whether the negro affection here deſcribed be identical with

ſcrophula

ſcrophula as it occurs in this part of the world. The diſeaſe chiefly attacks the extremities, running along the courſe of the lymphatics. The glands, at firſt, become tumid, and, in a little time, inflame and ſuppurate, and diſcharge an ichorous matter.

This ſtate continues, without any viſible change, perhaps for two, three, or four years. But, ultimately, the diſcharge will become ſo great as to exhauſt the miſerable patient; and, if not obviated, will completely deſtroy the powers of life.—In ſeveral caſes of this affection, the author found the muriate of barytes, as recommended by the late Dr. Adair Crawford, ſucceſsful.

The following is probably new to the generality of our readers:—'On one of the eſtates I attend in this colony, I found a man diſtreſſed with a variety of ſores, confined to the axilla of the right arm, clavicle, and cranium. I made ſtrict enquiry reſpecting the origin of the complaint, and was told it was occaſioned in conſequence of a ſevere bite he received from another negro on the middle finger of the right hand.

'Soon after he received this injury, the finger ſwelled very much; the ſwelling was communicated to the muſcles of the arm; and it was ſo painful, that the attending ſurgeon was under the neceſſity of amputating the finger as high up as the metacarpal bones. In a month after, tumors appeared in the axilla of that ſide, on the clavicles, and cranium; which afterwards ſuppurated, waſting the glands and muſcles of the parts ſo, that the bones became conſpicuous.

'Never having heard of any caſe or hint corroborating the idea of ſuch a diſeaſe, originating from the bite of a human being, I queſtioned its reality. But, on interrogating the owner of this ſlave (Mr. John Cruickſhank, a gentleman of unqueſtionable integrity and honour), he aſſured me he knew ſeveral inſtances of it in Jamaica, and other Weſt India Iſlands; but never heard of its being cured when it got this length.

'It

'It immediately occurred to me, that it might be ſomething of the ſame nature as the venereal virus, and that a courſe of mercury might obviate the diſeaſe; but after ſalivating him twice, I could obſerve no ſenſible change or amendment; and, if any thing, it was in a worſe ſtate.

'I then thought of giving the muriated barytes, as before; and in two months the bones under ſeveral of the ſores turned black, and exfoliated; and, according as this took place, healthy granulations appeared, and the ſores dried up.

'The teeth of negroes in this country, particularly thoſe advanced in life, are, for the moſt part, decayed, or incruſtated with the ſubſtance called tartar, which ſeems to be a depoſition from the ſaliva, in conſequence of a vitiated ſtate of that ſecretion. That this matter has a more noxious tendency, and is of a more active nature in tropical climates than any other, is not to be controverted, from the prevalence of poiſonous animals in them. Beſides, we have daily experience of the pain and trouble which the bite of the moſt domeſticated animal will occaſion. The negroes themſelves are well apprized of the danger to be apprehended from the bite of each other, and take the greateſt precaution to avoid inflicting this puniſhment in their domeſtic feuds; for, as certainly as they receive ſuch a wound, the part will feſter, and become remarkably uneaſy.

'Curioſity prompted me to make an experiment with the tartar on the teeth of a negro (and, indeed, the very one that bit the man that had the diſeaſe), by applying it to a ſlight ſore; and I invariably found the part, in leſs than twenty-four hours, diſcharging an increaſed quantity of matter of a ſanious nature; and I had much trouble in healing the ulcer it occaſioned.

'The ſame gentleman I mentioned before told me, he knew an inſtance of a negro boy going mad, in conſequence of a bite he received from a dog that was perfectly

perfectly free from all diſeaſe ; and that the animal went about the fields of ſugar canes for ſome weeks, as uſual, killing rats, until they thought proper to deſtroy him.'

16. *On the Uſe of the Cuprum Ammoniacale, in the Cure of Epilepſy. Communicated by Dr.* William Batty, *of Genoa.* The intereſting nature of the facts contained in this paper, with the judicious remarks that accompany them, induce us to tranſcribe it at length.

'The Marquis Antony Julius Brignole, a Genoeſe Patrician (being then nearly twenty-four years old, and not ordinarily unhealthy), was, on the 10th of January, 1786, ſeized by a rather ſlight epileptic fit. He had another, ſomewhat ſmarter, on the 15th of February, 1787. On the 20th of December, in the ſame year, he had, at the diſtance of about two hours, two more ſuch fits, and pretty violent ones.

'He was at the time above-mentioned, and ſtill is, the huſband of a very healthy lady, by whom he has had ſix children. The eldeſt of theſe was born before his father ſuffered the firſt fit. The mother was with child of the ſecond, when unfortunately ſhe ſaw her huſband under the firſt attack ; and ſhe was with child of the third, when ſhe ſaw him in his ſecond fit. A fourth ſon and two daughters were begotten and born after the father was cured.

'The eldeſt ſon never had any epileptic ſymptom ; the ſecond ſon ſuffered much from epilepſy ; and the third ſon, after having borne many attacks, died in an epileptic paroxyſm. Neither the fourth ſon, nor either of the daughters, ever had any epileptic ſymptoms ; though the eldeſt daughter, for a conſiderable time, gave us much anxiety on account of the largeneſs of the head, and the very late cloſing of the ſutures and fontanelles.

'May we from theſe facts reaſonably infer, that the epilepſy in theſe two children owed its riſe ſolely to the

the agitation of the mother, independently of the father's ailing? and that it was properly connate, and neither congenerate nor hereditary?

'The care of the health of this family being intruſted to me abruptly, and in very delicate circumſtances, I wiſhed to conſult, by letter, Dr. Cullen; and another copy reached Dr. Tiſſot: one deſigned for Dr. Barthez miſcarried. Drs. Cullen and Tiſſot both concurred with me as to the uſe of valerian and cuprum ammoniacale, as well as in the propriety of much moderate exerciſe in the open air. They differed remarkably from one another as to milk, one excluding its uſe entirely, whilſt the other adviſed very nearly a pure milk diet.

'The third ſon was given over before I was called in, and died in a very few days after, in the beginning of July, 1788.

'The father and ſecond ſon took cuprum ammoniacale in an extract of valerian, prepared with ſpirit of wine; and the father has had no return of the diſeaſe. From the time he ſuffered the firſt fit, till he began the uſe of the cuprum ammoniacale, his health had been conſtantly, though ſlowly, declining. He was grown much thinner, and had acquired a yellow and ghaſtly countenance; but grew viſibly better ſoon after he began his medicines; and, in no long time, became much more florid and robuſt than he had ever been.

'The ſecond ſon, taking the valerian and cuprum ammoniacale, continued to ſuffer ſome fits, though more moderate ones than before, and at longer intervals. He had been free from them ſome months, when I inoculated him with the ſmall-pox, on the 14th day of December, 1789, having forewarned the parents that I expected the fits would re-appear on the eruption, which they did, on the 23d and 24th. On the 25th a very favourable eruption took place. On the 6th of April, 1790, he ſuffered from cutting a tooth, and this excited one or two ſlight fits, which were the laſt.

laſt. I ſhould not have been ſurpriſed had they reappeared at the epocha of puberty; but they did not.

'The third ſon, as I have ſaid, died epileptic, a very few days after I was called in. He was nine months old: a conſiderable hydrocephalus had ſupervened; and, on diſſection, about five ounces of clear ſerum were found immediately under the dura mater; and about two ounces, tinged with blood, were found in the ventricles.

'It was in the caſe of the ſecond ſon, I was firſt ſtruck with the efficacy of vitriolic ether in abbreviating theſe fits, which it moſt evidently did every time it was applied. I apprehend that this ſucceſs depends on its action on the olfactory organ, though I not only apply it to the noſe, but rub with it the temples, and the pit of the ſtomach. I have ſince had experience of this application in many other ſubjects, and have found it evidently uſeful in at leaſt nine out of ten.

'Let me obſerve, that the head of the ſecond ſon, though quite natural at the birth, had become not a little deformed by the extraordinary prominence of one of the parietal bones. Nature, when delivered from the epilepſy, in a few years corrected this defect. The boy, as well while this prominence exiſted as ſince, has always manifeſted a genius much above mediocrity.

'The cuprum ammoniacale ſeldom fails a cure; never, I believe, if the epilepſy be idiopathic, and the patient not exhauſted. I go ſome length with it, and have never repented ſo doing. Mr. Gibbs, a gentleman from Exeter, long ſettled here as a merchant, has taken ſeventeen drams of it. He has now (upwards of two years) not only been perfectly cured, but his colour, appetite, digeſtion, and general health, have very ſenſibly mended under the uſe of this medicine.'

The

The remainder of the volume, which contains a variety of intereſting matter, will be noticed in a future number.

ART. II. *A Fourth Diſſertation on Fever: containing the Hiſtory of, and Remedies to be employed in, Irregular Intermitting Fevers. By* GEORGE FORDYCE, *M. D., F. R. S., Senior Phyſician to St. Thomas's Hoſpital, &c.* 8vo., 112 pages. London, 1802.

SEVEN years and upwards have paſſed away ſince the author laid his firſt *Diſſertation* on the important ſubject of Fever before the public; and the work is not yet completed. This dilatorineſs is the more to be wondered at, as, from his long habit of reading lectures on the practice of phyſic, his materials muſt have been collected, if not finally arranged for publication. Amidſt ſuch procraſtination and delays, one cannot help anticipating the poſſible interruption of his labours by the common diſturber of human ſchemes. Should this foreboding be unhappily realized, medical ſcience will have loſt much; for there are few capable of ſo accurately diſcriminating, and clearly and minutely depicting, the almoſt innumerable ſhades of this widely-varying malady; whilſt no one, perhaps, has more truly eſtimated the value of the different remedies in uſe for overcoming this formidable foe to the human race.*

Before

* Since the above was written, we have in reality to deplore the event our fears anticipated. As long as true medical ſcience ſhall be eſteemed amongſt us, Dr. Fordyce will not fail to be remembered with regret. His works manifeſt a ſpirit of obſervation and cautious deduction, which puts to ſhame the flimſy and deluſive ſpeculations of modern theoriſts. Rivalling the immortal *Sydenham*, as a genuine obſerver and reporter of diſeaſes, he far ſurpaſſed him as an experimental philoſopher. The

cotemporary

Before entering on the conſideration of the preſent eſſay, it will not be amiſs to recapitulate the ſubjects of thoſe which have already appeared.

In the year 1794, the firſt *Diſſertation* was publiſhed.* This contained the hiſtory and progreſs of ſimple fever, or fever conſiſting of one paroxyſm only.

In the following year, the ſecond Diſſertation appeared.† In this, the author gives the hiſtory and method of treatment of a regular tertian intermittent. Thoſe appearances only are here noticed which take place in the regular form of the diſeaſe; the accidents, and other diſeaſes which occaſionally take place during its progreſs, were purpoſely deferred to a future eſſay.

The *third Diſſertation*, part I., was publiſhed in 1798.‡ In this, the author gives the hiſtory and method of treatment of a regular continued fever, ſuppoſing it be left to purſue its ordinary courſe without interruption. The *ſecond part* of this eſſay appeared the year following,§ and contained an inquiry into the effects of the remedies which have been employed with a view to carry off a regular continued fever, without leaving it to purſue its ordinary courſe. From that time till the preſent, nothing further has appeared: one other diſſertation is ſtill wanting to complete the work. This is intended to contain the hiſtory and manner of treatment of the accidents which happen in continued fevers, and their irregularities.

cotemporary of the venerable CULLEN, the HUNTERS, and a few other worthies, who dignified and adorned the paſt century, his name will deſcend with their's, deeply engraven on the memories of all the true friends of medical ſcience.

* For an ample account of this, ſee Medical and Chirurgical Review, vol. I., p. 133.

† Ibid, vol. II., p. 426.

‡ Ibid, vol. V., p. 134.

§ Ibid, vol. VI., p. 421.

To return to the eſſay before us. The author, having deſcribed a regular tertian, and the manner of its treatment, proceeds in the next place to lay down the hiſtory and manner of treatment of thoſe intermitting and remitting fevers, which vary in their type from the true tertian.

In quotidians, the paroxyſms recur at the end of twenty-four hours from the beginning of the former paroxyſm; and in quartans, at the end of ſeventy-two hours from the commencement of the former attack. But ſome latitude is allowed in theſe caſes: quotidians may return at the end of twenty-two hours, and from that to twenty-ſix hours; and quartans from ſeventy to ſeventy-four hours; yet the ſame denominations be retained.

When the paroxyſms return conſtantly ſooner than twenty-four or ſeventy-two hours, they are called *anticipating* quotidians and quartans; when they return conſtantly later than the above periods, they are termed *retarding*.

In anticipating and retarding quotidians and quartans, the ſame indiſpoſition to return in the night time, which has already been ſhewn to happen in regular tertians, is found to take place. That is, if in a quotidian or quartan the firſt paroxyſm ſhould take place at noon; the ſecond at ten o'clock in the morning; the third at eight; the fourth at ſix; it often happens, that the fifth paroxyſm, inſtead of taking place at four o'clock in the morning of the next civil day, takes place at ſix o'clock in the evening of the day in which the fourth paroxyſm happened. So alſo if the firſt paroxyſm of a retarding quotidian or quartan ſhould happen at noon; the ſecond at two in the afternoon; the third at four; the fourth at ſix o'clock in the evening; and the fifth at eight; the ſixth, inſtead of taking place at ten o'clock in the evening, makes its appearance at ſix o'clock in the morning following, in the ſame manner as in a regular tertian.

A quo-

A quotidian has a ſhorter courſe if left to itſelf than a tertian—that is, if a quotidian be left entirely to itſelf, the intermiſſions become more perfect in from ten to fourteen days, when they become generally complete. If the diſeaſe be perfectly regular, they continue complete from three to four weeks; afterward the attacks become leſs violent, and the diſeaſe gradually goes off, ſo as entirely to leave the patient in about ten weeks. Whereas a regular tertian, going through its natural courſe, ſeldom leaves the patient in leſs than fourteen weeks.

On the other hand, in a quartan, if the paroxyſms from the beginning return from the end of ſeventy to ſeventy-four hours, the intermiſſions ſeldom become complete till about three weeks. If they continue to return at that period of time through the whole courſe of the diſeaſe, the intermiſſions afterward become longer, and are more perfect. The diſeaſe is apt to run out for five months before there are any ſigns of abatement, and it is often ſix, ſeven, or eight months before the diſeaſe ceaſes entirely.

Although the greater number of intermitting fevers follow the tertian, quotidian, or quartan type, yet it ſometimes happens that intermittents return at the end of ninety-ſix hours, ſo that they may be called quintans; and even ſome which may be called ſextants; and the author has ſeen two or three caſes of ſeptants. All the types beyond quartans, that have come under his obſervation, have not continued for more than five or ſix paroxyſms, after which they have gone off, or returned to quotidians, tertians, or quartans.

Other irregularities as to the time of recurrence are noticed, but for which we muſt refer to the work itſelf. Theſe, it may be obſerved, very frequently in their progreſs become tertian, quotidian, or quartan.

The firſt variation from a regular tertian the author notices, is a prolongation of the paroxyſms; ſo that inſtead of continuing for eight, ten, or twelve hours, each continues for a much greater length of time before the criſis is completed. The firſt cauſe of this prolongation is a diſeaſe which is apt to be excited in fever, and which the author calls general inflammation. This ariſes ſometimes in conſequence of fever; frequently from many other cauſes, and has often been called fever itſelf; ſometimes inflammatory fever, and ſometimes inflammatory diatheſis. It differs, however, the author obſerves, from fever wholly; as it may ariſe, continue its courſe, and terminate, without any fever being preſent; and, on the other hand, a fever may ariſe, purſue its own courſe, and terminate, without general inflammation at all taking place. The diſtinctions on this head are very important in practice; we ſhall, therefore, enter into them with ſome degree of minuteneſs.

The moſt ſimple appearance, the author obſerves, in general inflammation, and which ſeems to conſtitute the diſeaſe, is hardneſs of the pulſe. The feel of hardneſs in the pulſe is a ſenſation which ſome perſons have not been able to diſtinguiſh; and the author quotes the late Dr. Wm. Hunter as an inſtance of this, who, in like manner, was unable to diſtinguiſh concord from diſcord in muſical ſounds. This, however, is no proof that ſuch diſtinctions do not exiſt. We remember Dr. Falconer, in his Treatiſe on the Pulſe, aſſerts, that he could hardly ever count the pulſe in very early infancy; yet others feel no difficulty in doing it.

The beſt proof that there is in reality ſuch a thing as hardneſs of the pulſe, or a certain condition of it that ought to be characterized by a peculiar name, is, that it is invariably accompanied with peculiar appearances in the blood, when drawn from the large veins, and in a full ſtream. When the pulſe has a feel of hardneſs,

hardneſs, the blood is longer in coagulating than when no hardneſs is to be felt. In this caſe, the red particles being of greater ſpecific gravity than the other parts of the blood, have time to ſubſide, leaving the coagulable lymph on the ſurface, ſomewhat tinged with yellow or brown, and forming what is called a buff on the blood.

But there are all the gradations poſſible with reſpect to hardneſs of the pulſe. In ſome caſes, the author obſerves, the ſenſation of hardneſs in the pulſations of the arteries can hardly miſs being ſenſible to any perſon who has the leaſt delicacy of feeling; as happens in violent pleuriſy and acute rheumatiſm. In ſuch diſeaſes, it is difficult to produce a quick coagulation of the blood, or to prevent the appearance of buff on the ſurface of the coagulation: to prevent it, it is not only neceſſary to make a ſmall orifice in a ſmall vein, and let the blood run down the arm into a ſhallow veſſel, but it is even neceſſary to interpoſe ſome other ſubſtance, the ſurface of which it ſhall run over before it falls into the baſin, to make it coagulate quickly, and ſo ſhew no buff on the ſurface of the coagulum; while in other caſes the ſenſation of hardneſs is hardly diſcernible, and the leaſt variation of the circumſtances with which the blood is taken will prevent the appearance of a buff. There is another ſenſation which the pulſation of the arteries gives, which the author calls obſtruction.

This obſtruction of the pulſe has been generally felt in fevers, and has been called hardneſs by many authors. That it is a different affection of the arteries which gives this ſenſation to the pulſe, is very evident, ſince the feel of obſtruction may be very great; and, nevertheleſs, blood flowing from a vein into a baſin, under all the circumſtances moſt favourable to its remaining fluid, coagulates immediately, and of conſequence no buff appears on the ſurface of the coagulum.

It happens often, at the beginning of the hot fit of an intermitting fever, that the pulſe is very much obſtructed, and has by many authors been ſaid to be hard; yet frequently, indeed always, when it is only obſtructed, and not hard, if blood be taken from the arm and received into a baſin, under all the circumſtances that tend to make it remain fluid, it nevertheleſs coagulates immediately, ſo that no buff appears on the ſurface of the coagulum.

Fulneſs and ſtrength of the pulſe have alſo been often confounded with hardneſs, but neither fulneſs nor ſtrength is at all neceſſary to the feel of hardneſs; for in an inflammation of the inteſtines the pulſe is always hard, and blood taken from a vein into a baſin remains long fluid; conſequently the coagulum is covered with a buff. The pulſe in this caſe is hard, but not full or ſtrong.

Hardneſs, therefore, is a peculiar ſenſation given by the pulſation of the arteries, different from ſtrength, and fulneſs, and obſtruction, as well as from every other ſenſation, which the pulſation of the arteries produces in a finger applied to the ſkin immediately over an artery.

The ſenſation of hardneſs in the pulſe is evidently a mark of ſtronger action of the arteries. The coagulable lymph, in conſequence of an animal's being alive, remains fluid; the mucilaginous part of it remains diſſolved in the water. In the blood veſſels of dead animals, the mucilaginous part ſeparates from the water with which it is combined; it is therefore the life of the blood veſſels which keeps the mucilaginous part diſſolved in the water, and conſequently the coagulable lymph fluid.

The author ſatisfactorily proves that the blood's continuing fluid in the veſſels is not the effect of motion, but of life; and when the blood remains longer fluid than uſual, when taken from the veſſels, the effect muſt be attributed, he imagines, to the life remaining in it for a longer ſpace of time.

An

An action in the arteries producing a feel of hardneſs in the pulſe, conſtitutes general inflammation, and forms the ſimpleſt caſe of the diſeaſe; but other ſymptoms frequently attend it. The heart often acts more ſtrongly; that is, the left ventricle contracts with greater force, ſo as to propel the blood with greater force into the arteries. In this caſe, if the finger be preſſed upon a large artery lying immediately under the ſkin, the artery during the time of its diſtention reſiſts the preſſure, and it requires a greater preſſure to prevent its being diſtended, which ſenſation has been generally called ſtrength of the pulſe.

By this ſtronger action of the heart and arteries, the velocity of the blood is alſo increaſed, by which means it is made to return faſter upon the heart, and ſtimulate the heart to more frequent contractions, ſo that the pulſations of the arteries are not only hard and ſtrong, but alſo frequent.

It happens, too, if there be no other diſeaſe but general inflammation, that the left ventricle makes a full and complete contraction. When any muſcle makes a full and complete contraction, it is fully and completely relaxed after ſuch contraction. The ventricle of the heart, then, after making a complete contraction, makes a complete relaxation, and receives into it a large quantity of blood from the auricle, and propels all that blood at each contraction into the arteries, ſo that the artery in which the pulſe is felt is greatly diſtended, and the pulſe becomes not only hard, ſtrong, and frequent, but alſo full.

With theſe appearances there are want of ſleep, total loſs of appetite, ſenſe of univerſal diſtention, flying pains in the extremities, general tumour and redneſs; the patient draws his breath deep; there is ſometimes cough, pain in the internal part of the head; the patient complaining that his head is ready to burſt; fulneſs of the veſſels of the eyes, and delirium.

When this diſeaſe proves fatal, the feel of tenſion throughout the ſyſtem ſuddenly going off, the patient ſinks, or the affection of the brain may be ſo great as to deſtroy the patient.

When general inflammation takes place in intermitting fever, the paroxyſms, as has been ſaid, are prolonged by it, and the diſeaſe is often miſtaken for a continued fever. That it is not ſo, is known, firſt by the exacerbation taking place between ſix in the morning and five in the afternoon; and ſecondly, by the fever breaking down into a complete intermittent, after the general inflammation is gone off.

The moſt powerful remedy for carrying off general inflammation is evacuating the blood veſſels. The effects of this in diminiſhing the action of the arteries, and in reducing the general ſtrength of the body, the author very clearly illuſtrates. The diminiſhing the quantity of blood in the blood veſſels, occaſions an increaſed exertion of their ſides, in order to adapt them to the remaining quantity of blood; it draws, as it were, the living power of the body into the ſides of the veſſels, and leſſens at the ſame time all other action. Thus the loſs of a certain quantity of blood kills.

The quantity of blood may be leſſened alſo, the author obſerves, by increaſing the ſecretion from almoſt any of the glands in the body. But in this way an irregularity in the circulation is always produced, which is hurtful in fever. Blood-letting, therefore, is the only evacuation that can properly be had recourſe to for the purpoſe of removing general inflammation in fever.

In intermittents, happening in temperate and cold climates, the intermiſſions become almoſt always tolerably perfect. In ſuch caſes, therefore, we need not heſitate in taking away blood, if any danger or prolongation of the paroxyſm ſhould ariſe from general inflammation. In hot climates, where ſometimes there

there are hardly ever perfect intermiſſions, and where the patient is much ſooner exhauſted by the exertions which take place in the paroxyſms, and when the intermiſſions and remiſſions are not ſo perfect as to allow the patient to be recruited by employing food which gives much nouriſhment, excepting there be real danger from the general inflammation, there ſhould be great caution before blood is taken away. Such danger may ariſe from the tenſion, from the head's being affected. If there ſhould be ſuch real danger, a ſufficient quantity ſhould be taken away at once, ſo that the evacuation ſhall not require to be repeated.

Sometimes the paroxyſms are prolonged, and the diſeaſe rendered irregular, without any hardneſs of the pulſe; that is, without general inflammation taking place. In this caſe the author recommends clearing the ſtomach and inteſtines by an emetic and mild purgative, and afterwards giving preparations of antimony or ipecacuanha, or ſuch other medicines as tend to produce appearances ſimilar to thoſe which take place in the criſis of fever, till regular intermiſſions are procured.

When this prolongation of the paroxyſms happens in hot climates, ſo as frequently to leave no other mark of an intermittent to diſtinguiſh it from a continued fever, excepting that the exacerbations are not taking place in the evening, the diſeaſe is the moſt formidable which is incident to mankind. It has frequently been called the plague, and by ſeveral other names indicating the moſt fatal diſeaſe. The author, however, conſiders it as an irregular ſemi-tertian. It ariſes in hot climates, where the ground is marſhy, or where there are ſtagnating waters, or where thick foreſts prevent the heat of the ſun from drying the earth. It may be concluded, therefore, that theſe fevers ariſe ſometimes from putrefaction, ſometimes from cold generated by evaporation, and ſometimes, though ſeldom, from infection.

The author gives a deſcription of the diſeaſe in its moſt violent form, as it has appeared of late years in tropical climates, and which, with the remarks on the treatment, cannot fail to be highly intereſting and uſeful to practitioners in thoſe parts of the world. Although he has had no perſonal experience of the diſeaſe, his information has been derived from ſuch a variety of ſources, and has been ſo cautiouſly examined, that we have no doubt great reliance ought to be placed on it.

In the firſt place, he remarks, the attack of the diſeaſe has been ſo violent as to carry off the patient in the very firſt paroxyſm. In this caſe the diſeaſe, properly ſpeaking, muſt be called an ephemera. This was the caſe more particularly at Bencoolen, when Fort Marlborough was ſituate in a marſh near the ſea ſhore: it has ceaſed to be ſo fatal ſince the Fort has been removed to a more elevated ground.

It happens in a leſs violent degree in other caſes. Thus, when European troops have been ſent to the iſlands lying between the tropics, on the eaſtern coaſt of America, the firſt attack of the fever has rarely been fatal. The patient has been ſeized at once with all the moſt violent ſymptoms of the firſt ſtage of fever. Sometimes with a ſenſe of coldneſs, ſhivering, rigour and horror; great depreſſion of ſtrength, and want of diſpoſition to exert the powers of the mind, and a total apathy to all external objects: there has been great thirſt; the tongue has been covered ſometimes with a thick fur; nauſea, total averſion to food, want of ſleep, and all the other moſt violent ſymptoms of the attack of a regular fever, have taken place. Moreover, the diſeaſe in all thoſe who had been affected with it, whom afterwards the author had occaſion to ſee, and who remembered the circumſtance, began between ſix in the morning and eight at night. The attack was well marked, no ſymptoms of the firſt ſtage having preceded for ſeveral days before.

After

After the attack, the exacerbations became much more violent, ſo that the diſeaſe increaſed very faſt. The author could never gain any information whether theſe exacerbations took place in the evening, or at any other part of the day. This has been already ſhewn to be the great criterion between intermittent or remittent fevers, the exacerbations of which take place between ſix o'clock in the morning and ſix o'clock in the evening; and continued fevers, in which the exacerbations always take place between five and ſix in the evening.

On the ſecond, third, fourth, or fifth day, the nauſea increaſes, and the patient begins to bring up a dark brown matter. This has rather the appearance of the matter formed upon the tongue in very violent fevers. It is alſo moſt probably formed upon the ſurface of the ſtomach, and perhaps of the duodenum, or even on the beginning of the jejunum. This matter has not the colour or taſte of bile. The force of the exertions in vomiting often occaſions a greater quantity of bile to be ſecreted, thrown back into the ſtomach, and brought up along with the dark brown matter. When this happens, it gives to the matter thrown up the taſte and appearance of bile. At other times, however, there is no appearance of bile at all, but only of this dark brown matter.

When ſuch vomiting has taken place to any great degree, the action of any medicine thrown into the ſtomach is apparently prevented. The food is not digeſted, and the patient is almoſt always cut off. This has given the name of black vomit to the diſeaſe.

At other times, ſpaſmodic contractions of the extremities take place, ſimilar to the varieties of tetanus, with violent delirium. Theſe ſymptoms are often fatal, though not ſo conſtantly as the vomiting which has been juſt deſcribed.

At other times the ſkin aſſumes a dark brown colour, which has given it the denomination of yellow fever.

Many

Many have ſuppoſed, that this was owing to a quantity of bile getting into the blood veſſels, and have conceived that bile was the cauſe of the appearance. The colour, however, is very different from that which takes place in jaundice. The evacuations from the inteſtines have not that clay-like appearance, which is common in the jaundice. The ſecretion from the kidneys has not that deep yellowiſh brown, nor that thick ſediment, which have almoſt always been ſeen in thoſe perſons in whom bile has got into the blood veſſels.

The dark brown colour of the ſkin ſeems to the author rather to ariſe from a greater ſecretion of the ſebaceous matter ſecreted by the ſebaceous glands of the ſkin than from any other cauſe.

This fever often, likewiſe, has dyſentery ariſing in it; but as the author does not at preſent mean to treat of that diſeaſe, he has only to obſerve, that this dyſentery, along with the fever, very ſoon weakens and wears out the patient, and alſo renders the diſeaſe extremely fatal.

The fever, as the author has deſcribed it, ſeems as if it were a continued fever. There is one circumſtance, however, which has convinced him that it is a ſemi-tertian. This is an agreement of all thoſe who have had, or have ſeen, or have treated the diſeaſe, in the following obſervations. It happens often that a patient apparently becomes greatly relieved, and appears in a ſtate as if he were recovering, when all at once a freſh attack takes place, and carries him off

This diſeaſe, when it takes place in ſo violent a degree, is ſo very frequently fatal, that it ſeems rather to have confounded practitioners, and made them employ all kinds of the moſt violent remedies they could think of, as if a very violent and fatal diſeaſe could only be got rid of by very violent means. Some practitioners have taken away large quantities of blood; ſome have purged largely; ſome have given large

quantities

quantities of mercury; ſome have thrown cold water upon the patient. All theſe, and other violent meaſures, ſeem to have enhanced the danger, and rendered the diſeaſe much more fatal than it would have been if it had been left to go through its ordinary courſe. It would ſeem not at all proper to exhibit medicines which are not found to avail in ordinary and leſs dangerous caſes of the diſeaſe.

There does not ſeem to be ſo conſiderable a degree of general inflammation as to render it neceſſary to make evacuation by bleeding, to obviate the danger that ariſes in conſequence of ſuch general inflammation. The general inflammation is not ſo great as to prolong the paroxyſm, ſo as to require this evacuation; and the author has before affirmed, that bleeding from any large veſſel indiſcriminately, in any part of the body, has no power of diminiſhing or carrying off fever. As far, therefore, as he can judge, he ſhould expect no advantage, but great miſchief, from taking away a quantity of blood, or repeating the evacuation. He thinks it would hardly ever be prudent to take away blood at all.

Purging, as has been ſaid in former Diſſertations, excepting ſo far as to keep the bowels free from putreſcent matter, is extremely hurtful in fever. The quantity evacuated weakens the patient, and diminiſhes the powers of the body, ſo as to render a patient unable to ſupport himſelf during the courſe of the diſeaſe. At the ſame time, the alteration in the circulation ariſing from the purgative, cauſing a larger flow of blood to take place in the interior parts of the body, makes the effort in the hot fit to produce a perfect criſis, or greater relaxation of the paroxyſm, leſs efficacious; for its efficacy depends on the uniformity of its action in every part of the ſyſtem, as the author has formerly pointed out. The author muſt, therefore, be of opinion, that large evacuation by purging is very detrimental, inſtead of being uſeful in this diſeaſe.

Mercury

Mercury cures the venereal diſeaſe, which no other medicine will cure, or at leaſt not with any degree of certainty. Phyſicians have ſeemed to have concluded, that whatever medicine will cure one diſeaſe, which no other medicine can cure, will cure all diſeaſes, which no other medicine will cure. This ſuppoſition has occaſioned mercury's being employed in a variety of diſeaſes, where it evidently does a great deal of miſchief. It has alſo occaſioned it to be employed for a great many purpoſes, for which other medicines are much more properly adapted. Mercury has been employed in all caſes of fever, of an ordinary degree of intenſeneſs, whether continued or intermitting, by various practitioners, without any ſenſible good effect, either in producing criſis, occaſioning more perfect relaxations, or ſhortening the ordinary courſe of the diſeaſe. It is evident, therefore, that it is imprudent to exhibit it in theſe moſt violent fevers.

The next thing that requires conſideration is, whether we be to leave the fever to go through its ordinary courſe; as, although it is a very dangerous diſeaſe, it is by no means always fatal, but in many caſes has gone off, when left entirely to itſelf; or whether ſome effort is to be made to carry it off; or whether ſome medicine may not be employed to make it go through its courſe with leſs danger to the patient.

Preparations of antimony, ipecacuanha, and other medicines, have been ſhewn to produce ſymptoms ſimilar to thoſe which take place in the ordinary criſis of fever. Theſe, eſpecially Dr. James's powder, have frequently been employed in this very violent diſeaſe. The patient's ſtomach very ſoon becomes ſo extremely irritable, that any doſe of ſuch medicines, which might be expected to be at all efficacious, has produced vomiting; which, when it takes place in any great degree, has hardly ever been got over, but has deſtroyed the patient. The author conceives it is poſſible that preparations of antimony, of which he has

ſaid,

ſaid, in a former Diſſertation tartarized antimony is the beſt hitherto known, if they have any chance of carrying off the diſeaſe, by producing ſymptoms ſimilar to thoſe which take place in the ordinary criſis of fever, ought to be exhibited immediately on the attack of the diſeaſe. This immediate exhibition of them, he apprehends, has been prevented; in the firſt place, by the great depreſſion of ſtrength, and perfect apathy of the patient, which ariſe immediately on the attack of the diſeaſe; ſecondly, by the general want of energy of the inhabitants of very hot climates; thirdly, by the hurry which takes place in all military operations, this diſeaſe being particularly apt to ariſe in armies in very hot climates: laſtly, from the great hurry of practitioners, when a town, diſtrict, or country, is ſeized with an epidemic diſeaſe. The author can ſay nothing from his own experience, but ſhould be diſpoſed, at the moment of the attack of ſuch a diſeaſe, to employ as great a doſe of tartarized antimony as the patient could bear without producing nauſea; that is, from a quarter to a third part of a grain, together with about half a grain of opium. The medicine ſhould be repeated every four hours. The patient ſhould be laid in bed, and covered with a light covering of cotton. Warm, watery, farinaceous, and mucilaginous fluids ſhould be drank frequently. If this practiſe be not begun within ſix hours from the attack, the author ſhould not expect much ſucceſs from it. At any rate, he propoſes it with great diffidence.

If by this practice that moiſture ſhould be reſtored to the ſkin, with which it is generally covered in hot climates, it may be continued for two or three days; and if the ſymptoms of the diſeaſe ſhould be ſo far diminiſhed, as that any thing like a criſis ſhould be brought on, and the ſtomach be quiet, the author then would recommend the exhibition of peruvian bark in

ſubſtance,

substance, to the quantity of a dram every hour, or as much as the patient's stomach will bear without producing sickness.

As to the action of any other remedy, which the author has pointed out, as carrying off or alleviating regular continued fever, or regular tertians, such as inflaming the skin in any part of the body, applying leeches to the temples, fomenting the lower extremities, &c. he has little hope that any of them will be of use. The method which has been recommended of nourishing, supporting the strength, and treatment in other respects in a regular continued fever, while it is going through its ordinary course, should also be employed in this disease.

(*To be continued.*)

ART. III. *A Practical Synopsis of the Materia Medica: Vol. II., Part I., containing Emollients, Absorbents, Refrigerants, Antiseptics, Astringents, Tonics. By the* Author of *Thesaurus Medicaminum.* 8vo., 150 pages. London, 1802.

IN our account of the former volume* of this work, we pointed out its general nature, and the motives which determined the author to bring it forward, at a time when we were in possession of several able and extensive treatises on the same subject. He there treated of the *Materia Alimentaria*, and the first class only of the *Materia Medica*, the *Evacuantia*. The contents of the present may be gathered from the title page given above. One other part remains to complete the work, and this, we are informed, will be published in the course of the ensuing winter. It will contain the classes of *Antispasmodics, Narcotics, Stimulants, Anthelmintics*, and *Heteroclites*.

The general remarks which precede the classes are too concise to afford the requisite information; most

* See Medical and Chirurgical Review, vol., IV., p. 419.

of

of them, indeed, are introduced without any preliminary obſervations. This is a defect of no ſmall importance; as many of the articles included, for example, under the claſs *Refrigerants*, are amongſt the moſt active and powerful of the Materia Medica. Thus, in the liſt, we find, beſides the vegetable acids and the neutral ſalts, the mineral acids, the *ſpiritus ætheris vitriolici*, (which ſeems rather to belong to the claſs of ſtimulants,) and the various preparations of lead. Theſe have certainly little or no analogy in their mode of action. But the objection, perhaps, applies to the claſs itſelf. Indeed, as the author obſerves in the preface, there appears great reaſon for altering and amending the *Materia Medica* altogether. It ſeems to require an arrangement totally different from its preſent form.

The execution of the work may be judged of from the extracts we have already given; we ſhall not, therefore, enlarge further at preſent. Speaking of *oxygene gas* as a tonic remedy, the author ſuppoſes it might be advantageouſly evolved by the bed-ſide of patients labouring under typhus, &c. from a mixture of pulverized manganeſe and vitriolic [ſulphuric] acid.—This acid does not ſenſibly act on manganeſe in a perfectly oxydated ſtate; nor, when employed in the ſtate of an imperfect oxyd for the purpoſe, is oxygen gas given out.

ART. IV. *An Account of an Ophthalmia, which appeared in the Second Regiment of Argyleſhire Fencibles, in the Months of February, March, and April*, 1802: *with ſome Obſervations on the Egyptian Ophthalmia. By* ARTHUR EDMONSTON, *Surgeon.* 8vo. 33 pages. London, 1802.

THE late Egyptian expedition furniſhed an excellent opportunity to the profeſſional gentlemen that

attended it, of acquiring intereſting information with regard to the climate and diſeaſes of that part of the world. That they have profited by it, they will, we truſt, hereafter afford the public ſome proofs. The pamphlet before us has ſome, though a remote, relation to this ſubject, as there appears, from the author's account, ſome grounds for ſuſpecting the diſeaſe of which he treats to have originated on the Egyptian coaſts, and to have been conveyed thence, and diffuſed afterwards by contagion. But on this point the author ſhall ſpeak for himſelf.

The regiment which the author had the care of was not itſelf in Egypt, but embarked at Gibraltar, on its return to England, on board the Delft troop ſhip, of 68 guns, in a healthy ſtate. The Delft had been employed in the Egyptian expedition, and was conſidered as an unhealthy ſhip, both in her paſſage to Egypt, and in her return from it. She brought down to Gibraltar a part of the Guards, who on their arrival there were put on board other ſhips, on account of the ſickly ſtate of the Delft. The prevailing diſeaſes on board her were fever and ophthalmia. During the time ſhe remained at Gibraltar, a period of two months, ſhe was frequently waſhed and fumigated, and every means employed that could render her fit for the reception of troops. At the embarkation of the Argyleſhire regiment, with the exception of one of the lieutenants of the ſhip, who had loſt the ſight of an eye in Egypt from ophthalmia, and then laboured under the diſeaſe, both the officers and crew might be conſidered in a ſtate of perfect health. The bedding delivered out was new, but the hammocks, except a few appropriated for the uſe of the ſick, had all been occupied by the Guards. Theſe circumſtances we have thought it right particularly to notice, as they tend to throw light on the queſtion of contagion.

The ſhip ſailed two days after embarkation, and completed her voyage to Spithead in twenty-one days; here

here ſhe remained a week under quarantine, previous to diſembarkation. The order in which the ophthalmia aroſe and ſpread, is deſcribed as follows :

'One caſe of ophthalmia occurred ten days, and ſix other caſes ſeven days, before the diſembarkation. The patients could aſſign no evident cauſe for the attacks. The invaſion was ſudden, and the progreſs of the inflammation rapid. A few ſlight caſes of fever alſo made their appearance.

'The men were very much crowded; and from want of attention in caulking the gun ports of the ſhip, the water came freely in at times on the lower deck, where they lay, which, notwithſtanding every attempt to keep it dry, was frequently wet. It may be worth while to mention, that, in two companies ſtationed in the centre of the ſhip, where the water had the freeſt acceſs, the diſeaſe which afterwards broke out, although it did not occur in the firſt inſtance, yet was immediately afterwards more rapid in its progreſs, and more widely extended in one of them than in any other company in the regiment; while in the other oppoſite to it, and placed under ſimilar circumſtances, nothing particular occurred.

'The regiment remained at Hilſea ten days, and, during this period, twenty-one new caſes appeared. The ſymptoms were the ſame as in thoſe that had occurred on board of ſhip. At this time orders were received to proceed to Colcheſter, a diſtance of about 120 miles, and which was accompliſhed in eleven days. The regiment marched in three diviſions. I was attached to the firſt diviſion, and the aſſiſtant ſurgeon, Mr. Weſtbury, to the laſt diviſion, dividing the ſick between us. Four new caſes only occurred on the road, and theſe in the laſt diviſion; and Mr. Weſtbury, on whoſe accuracy I could rely, informed me that the ſymptoms were comparatively mild, and that thoſe he brought from Hilſea had perfectly recovered. This coincided with what had occurred in my diviſion.

'Three days after our arrival at Colcheſter, the diſeaſe recurred, and with increaſed violence. The ſymptoms and ſudden mode of attack were the ſame, but the inflammation was greater, and the cure more difficult. The ſimple inſpection of the eye of a perſon labouring under the diſeaſe was ſufficient to produce it in another. Several curious and unequivocal inſtances of this kind occurred.* At Colcheſter we were provided with an excellent hoſpital, and every neceſſary accommodation procured. Seventy-five caſes occurred while here, and when the diſeaſe was beginning to abate, a new order arrived for the regiment to march to Norman Croſs, a diſtance of about ſeventy-four miles. The arrangements reſpecting the march were nearly the ſame as before, and although ſeveral of the men had their eyes in a weak irritable ſtate, none were left behind. They were all provided with green ſhades tied to their caps, which completely protected the eye from the ſun's rays; and each was furniſhed with a quantity of ſugar of lead, and directions how to uſe it.

'On the firſt and ſecond days of the march, all the affected complained that their eyes were worſe; but fomentation with a luke-warm ſolution of ſugar of lead, and a poultice, at bed-time, produced conſiderable relief, and on the third and remaining days of the march, the whole, without any exception, began to get better. Twelve new caſes occurred on the road,

'* One in particular deſerves to be mentioned. Two ſerjeants came one day together to the hoſpital, complaining of ſore eyes. One of theſe had been affected three hours before application for medical aſſiſtance, and one hour before preſenting himſelf at the hoſpital he had requeſted his friend to look at his eye. The other complied, and declared to me that during the time he was looking at the eye of his comrade, he felt a pain in his own. Although only one hour had elapſed from the period of the firſt ſenſation, the tunica adnata was covered with blood, and the watery effuſion had taken place.

'Men in perfect health, ſleeping in the ſame bed with others under the influence of the diſeaſe, were generally affected in a ſimilar manner the next morning.

but

but were affected in a ſlight degree, ſo much ſo, that ſeveral of them recovered without the aid of any remedy.

'The energy of the cauſe, ſince arriving at Norman Croſs, ſeems ſomewhat impaired. The inflammation is not ſo violent, nor ſo rapid in its progreſs, and the cure, in general, is more eaſily effected; ſo that at length I begin to entertain the hope, that the period is not far diſtant when the regiment ſhall be relieved from this troubleſome complaint.'

The author next deſcribes the ſymptoms of the affection. 'Theſe,' he obſerves, 'were few, and ſtrongly marked, ſudden in the invaſion, and rapid in their progreſs, beginning generally at night or towards morning, without the ſlighteſt preceding uneaſineſs; often when the individuals were on duty, or engaged in amuſement. The patient felt all at once as if ſomething was rolling over the ball of the eye, which he in vain attempted to remove, attended with a troubleſome ſenſe of itching. This was immediately ſucceeded by a copious diſcharge of a watery fluid, ſo acrid as to ſcald thoſe parts of the face over which it flowed; and which from its quantity ſo diſtended the eye-lids, particularly during the night time, as not to admit of their being opened but with the greateſt difficulty. If the eye was now looked into, the whole tunica adnata appeared of a florid ſcarlet colour; and even at this early period of the diſeaſe, in a few inſtances, was interſperſed with ſmall circumſcribed ſpots of extravaſated blood. The eye-lids were of a deep red colour, and often ſo much ſwelled as to preclude the free examination of the eye. In the courſe of one day, frequently in the ſpace of two hours, a diſcharge of a purulent-like matter took place; ſmall elevations of a yellow colour began to appear on the opaque cornea, and the eye-lids were thickened, and of a

ſpongy texture; the pain was exquiſitely acute, and the ſlighteſt admiſſion of light always conſiderably increaſed it.

'In this way the diſeaſe went on with various duration; but generally about the morning of the third day the inflammation had attained its acmé, conſtituting what may be called the firſt ſtage of the diſeaſe. The keen acute pain now in a great meaſure ſubſided, while a ſenſe of weight and heavineſs ſucceeded, attended with a peculiar ſenſation of weakneſs, though not of pain, on any expoſure to light. The watery effuſion was diminiſhed, but the purulent diſcharge was more copious, and became of a thicker conſiſtence. The redneſs, ſwelling, tenſion, and pain, gradually became leſs, and in the courſe of eight or nine days from the firſt attack, the patient generally recovered; but a certain weakneſs of ſight remained for ſometime afterwards.

'But when the diſeaſe paſſedthe uſual period of decline, and the inflammation went on increaſing, the eye and its coverings were more deeply affected. Ulceration took place from the ſurfaces of both eye-lids, and the tenſion and tumefaction were ſo great as to keep the eye ſhut for ſeveral days; and when, from the effect of emollient applications, the patient was enabled to ſeparate the eye-lids, the latter appeared to be glued to the ball of the eye; and in this manner it appears thoſe preternatural adheſions are formed, which frequently terminate in the loſs of ſight.

'Every ſymptom was uniformly aggravated towards evening, and remitted in the morning, forming a regular exacerbation.

'The ſyſtem did not appear, from the feelings of the patient, in any inſtance to be primarily affected; and his firſt information of its exiſtence, was the ſenſation of ſomething like a foreign body in the eye. But when the attack occurred in the night time, his ſleep was diſturbed; and head-ache, a white furred tongue,

tongue, with occaſional increaſe in the frequency of the pulſe, were generally preſent from the commencement, and indicated a conſtitutional affection, too inconſiderable, perhaps, at firſt to excite his attention. In the ſecond ſtage, however, and when the inflammation was high, the head-ache and general irritability of the ſyſtem were ſuch as to oblige the patient to confine himſelf to bed.

'Both eyes were ſeldom affected at the ſame time. The diſeaſe uſually began in one eye, and after continuing a ſhort time, paſſed to the other. In a few inſtances it was confined entirely to one eye; but this more frequently took place when the inflammation had been pretty ſmart for a few days in the eye firſt affected; but if it ſuddenly ceaſed in one, it invariably attacked the other. In a few caſes the eye-lids were the chief ſeat of the diſeaſe: when this was the caſe, it was comparatively mild, and admitted of eaſy removal.

'The duration of the diſeaſe ſeemed in a great meaſure to depend on the nature of the inflammation. Whenever it was rapid in its progreſs, and the colour of the veſſels florid, the cure was eaſily effected. But when it came on ſlowly, and proceeded in a gradual manner, which occurred chiefly in phlegmatic habits, the treatment was tedious and uncertain; and it was in caſes of this kind that ulceration of the eye-lids moſt uſually occurred.

'Relapſe was a frequent occurrence, and induced by the ſlighteſt irregularity. In theſe inſtances the former train of ſymptoms were renewed, but with diminiſhed energy, and were of ſhorter duration. The ſucceeding debility was great, and the pain and irritability of the eye much increaſed.

'Although this ophthalmia has been very general, and peculiarly violent in ſeveral inſtances, it has not as yet, been fatal to the ſight of a ſingle individual in the regiment. There is only one caſe, at preſent,

wherein ulceration of the eye-lids exiſts. It has been of longer duration than any other, and partial adheſions of the eye lids to the ball have taken place; but as the patient is now in a ſituation where every care can be taken of him, and as he has youth on his ſide, I have every juſt reaſon to hope that his diſeaſe will have a favourable termination.'

In the treatment, the greateſt relief ſeems to have been experienced from ſcarification of the veſſels on the globe of the eye; even this, however, was injurious, if not performed very early after the attack, viz., whilſt the veſſels of the conjunctiva appeared round, ſmall, and of a florid colour, and there were great intolerance of light, and acute pain in the globe of the eye, and before the purulent diſcharge had come on.

General blood letting was only once uſed, and that without deſign with regard to the ophthalmia, but for another complaint. It did not, however, appear to produce any decided effects. The ſolutions of the ſalts of lead and zinc, applied warm, were the beſt external applications. Cathartics were employed, but at the beginning without good effect. In the ſecond ſtage, ſmart doſes of calomel were uſeful. On the other hand, bliſters to the forehead and temples were found peculiarly beneficial in the ſecond ſtage of the diſeaſe, but at the commencement were as certainly hurtful. The good effects of a ſolution of opium, too, were confined to the ſecond ſtage.

Having made a number of judicious remarks on the effects of remedies in the diſeaſe here deſcribed, Mr. E. proceeds to inquire into the cauſes which may be ſuppoſed to have produced it. Cold winds and damps, duſt, and the other ordinary exciting cauſes of ophthalmia, did not exiſt in the preſent caſe, ſo as to account for its production. And, therefore, though contrary to the generally received opinion, which conſiders

ſiders ophthalmia as a local affection merely, the author is inclined to attribute it to contagion imported from Egypt. 'This very diſeaſe,' he obſerves, 'which raged in Egypt, and was fatal to the ſight of ſo many, had exiſted on board the Delft for a conſiderable time, and in an extenſive manner, and did at this time actually exiſt in the perſon of one of the Lieutenants of the ſhip. The ſoldiers of the Argyleſhire regiment ſlept in the ſame hammocks, which had been occupied by the Guards, among whom the diſeaſe had prevailed. Here there were two ſources of infection continually applied; the human body actually under the influence of diſeaſe, and the no leſs concentrated ſtate of fomes in the bedding; and when we conſider the numerous inſtances on record of contagion producing diſeaſes after a long period had elapſed from their exhibiting any ſenſible effects, the two months which the Delft remained at Gibraltar, and the repeated fumigations ſhe underwent, will hardly be deemed ſufficient to deſtroy the influence of ſo ſubtle and penetrating an agent.*

'The Middleſex Militia lay at Colcheſter the ſame time with the Argyleſhire regiment, and both left the barracks on the ſame day. As they marched out, I diſcovered one of their ſoldiers apparently blind. Both eyes were greatly inflamed, and ſwelled in a prodigious manner. He told me that, three days before, his eyes became ſuddenly ſore, and that on looking into a glaſs, he was aſtoniſhed to ſee them covered with blood. On my inquiring whether he could aſſign any cauſe for his complaint, he ſaid he could not, but

'* Almoſt every diſeaſe muſt have been originally produced by external cauſes; but when once it exiſts, there ſeems no impropriety in ſuppoſing it to poſſeſs the power of propagating itſelf. And although it be granted that ophthalmia is endemic in Egypt, yet it may be contagious with reſpect to the inhabitants of other countries; and perhaps one reaſon why ophthalmia has not appeared directly contagious in Britain, is, that its exciting cauſes are not ſufficiently general and permanent to produce a range of diſeaſe adequate to the effect.

ſuppoſed it to be the ſame as the Argyleſhire laboured under: and added, that a comrade of his had been affected in a ſimilar manner, though not in ſo ſevere a degree. The appearance of the eyes of this man was exactly the ſame as in the other caſes which had fallen under my obſervation, and his account of the progreſs of the ſymptoms is ſtated without any exaggeration; but I have not been able to learn the event of the caſe, or whether the diſeaſe was extended to others.

'But in regiments placed under ſimilar circumſtances with the Argyleſhire, and expoſed to what may be called the primary ſources of the diſeaſe, the reſult has been uniformly the ſame. By a letter received from Mr. Robinſon, the aſſiſtant ſurgeon of the Banffſhire Fencibles, on this ſubject, I am informed that the ophthalmia prevailed very generally in that regiment ſeveral weeks before its departure from Gibraltar. He thinks the infection was received from the eighth regiment, which had many ill of this complaint when it arrived from Egypt He ſays, the invaſion was ſudden, and the inflammation, if by any accident it was neglected for a day, increaſed with uncommon rapidity; that moſt of the caſes yielded to ſmart doſes of calomel at night, and ſalts next day; and, except in a few inſtances, where he had recourſe to bliſters on the temples, theſe were the only remedies neceſſary for their cure.'

That the diſeaſe in queſtion originated and was kept up by contagion imported from Egypt, is further probable, the author thinks, from its analogy with other contagious diſorders. It may be inferred, from the ſymptoms correſponding with thoſe of the Egyptian ophthalmia; from the inſufficiency of other cauſes to produce it; from the circumſtance of thoſe afflicted with it having ſlept in the ſame beds with thoſe who had been previouſly ſufferers; and from

ſimilar

similar effects having taken place in other regiments under similar circumstances.

These reasons, no doubt, give a considerable degree of probability to the author's opinion; but it wants other proofs to establish it satisfactorily. These, we should imagine, might be furnished by the practitioners who have had an opportunity of observing and tracing the progress of the disease on the coast of Egypt.

ART. V. *A Treatise on the new-discovered Dropsy of the Membranes of the Brain, and Watery Head of Children; proving that it may be frequently cured, if early discovered: with Objections to Vomits, &c. &c. To which are added, Observations on Errors in Nursing; on the Diseases of Children, their Treatment, &c. proper for the Contemplation of Parents. By* WILLIAM ROWLEY, *M. D. Physician to the St. Mary-le-bone Infirmary, &c.* 8vo. 44 pages. London, 1801.

THERE are some writers that affect singularity, and strive to build their fame on the ruin of that of their contemporaries. They engross, in their own imaginations, the totality of professional skill, and appeal to their own works, as of oracular weight. Of this stamp appears to be the writer of the essay before us. With a consummate contempt for the doctrines and precepts of the modern schools, he refers us incessantly to the *Schola Medicinæ Universalis Nova*, and other of his publications, as the sum and substance of medical erudition and practical admonition. This Latin work (contained in two bulky volumes)* the

* The author here observes in a note, "It is my intention, if my life be spared, to produce a third volume, in addition to the other two, of *Schola Medicinæ* in English, containing the doctrine

the author here *advertises* us, 'was the labour of six-and-twenty years, and was intended as an University school-book, to abridge the study of medicine, and to convey, in as small a compass as possible, the history and utility of every discovery that has appeared for above two thousand years!' For the benefit of the mere English reader, the author intends shortly to publish an *abridged* translation—an abridgement of that which we were before told was intended to *abridge* the study of medicine, and to convey, *in as small a compass as possible*, the history and utility of every discovery, &c.! For the conveniency of the pocket, too, we are informed, it will appear in numbers.—But our business at present is with the pamphlet before us.

The author is of opinion, that there exists a species of hydrocephalus, where the water is collected between the tunica arachnoides and the pia mater, without any effusion in the ventricles of the brain: that it is readily distinguishable by attention when present, but that it is very frequently overlooked, and from being mistaken, has occasioned the death of innumerable patients, though, when early discovered, an adequate mode of cure may be applied. 'A spirited, determined exertion, patience, and perseverance,' he observes, 'conquer all difficulties.'

The distinguishing, or diagnostic symptoms of hydrocephalus membranarum, are thus delivered:

trine of *every* disease incident to the human body, formed on anatomical and physiological truths, and on the most determined experience, collected from all authorities, antient and modern, worthy of attention, as well as by the *immense* observations of my own, acquired by between forty and fifty years practice; in which not only the English modes of treatment will be introduced, but whatever has been seen in *every* great hospital throughout Europe, in the West Indies, America, &c. &c. In which work all idle speculations and false theory, those disturbers and perverters of medical science, will be excluded"!! For an account of the two former volumes, see Medical and Chirurgical Review, v. 4, p. 51, et postea.

'It

'It is difficult to give the precise diagnostic, or distinguishing symptoms of the hydrocephalus membranarum; it is more easily comprehended by ocular demonstration than expressed by words—*Profunda lustrare absque exemplis arduum.*

'The diagnostic, or distinct symptoms, by which the membranous dropsy of the brain may be known from other diseases, are:

'I. The general attack, evidently, on the brain, nervous and animal system.

'II. Heaviness of the eyes, diminution of nervous energy, and drowsiness.

'III. Alternate flushings, more or less florid; and, at other times, pallor of the face, and sometimes of the lips.

'IV. The rapidity of the pulse, beating from 100 to 150, at different times of the day, with little or no increase of heat, except on the top of the head.

'V. The slowness of the pulse, at intervals, beating not above 84 or 96.

'VI. Intolerance of light, seemingly from increased sensibility of the retina, or from inflammation of the membrana choroides.

'VII. The torpor of the intestines and obstinate constipation, scarcely removable by brisk purgatives.

'VIII. It differs from scarlet or other fevers, because the red appearance, or floridity of the face, is not so deep, nor remains stationary; but changes several times in a day.

'IX. It likewise differs from fevers, as slumbering and comatose symptoms commonly appear towards their termination; but, in *hydrocephalus membranarum*, listlessness to action, and an heavy dulness, commence with or appear in the first stages of the disease, and continue till death.

'X. It differs from fevers beeause it does not arise from cold, nor contagious putrid miasmata; nor, as fevers generally do, commence with cold shiverings, succeeded

succeeded by heat, thirst, and quick pulse. In many cases, little or no febrile heat is perceived, even when the pulse beats 140 or 160.

'XI. It differs from the flushings and heats observable in teething, because these causes may be traced by examining the gums, which are inflamed, with increased secretion of saliva, heat in the mouth, pain, &c.

'XII. Most fevers are attended with watchfulness, and, except the nervous, with a certain degree of thirst, and a diminished secretion of saliva, dry mouth and fauces, parched tongue, &c.; but *hydrocephalus membranarum*, with the reverse of watchfulness; namely, dulness, slumbering and insensibility, stupor. The tongue is not dry, nor parched, or rarely so: thirst is not vehement, but generally very moderate, unless a fever be superadded.

'XIII. The consideration of what leads to the disorder throws great light on the subject, for it is most commonly, though not always, a disease of debility, and succeeds to other complaints, in which violent vomits had been administered to the hooping, catarrhal or other coughs; or from whatever could debilitate the constitution, and break down the crasis of the blood, exclusive of natural causes of debility, independent of any specific disease.'

The practical reader will find nothing in the above description materially different from the dropsy of the ventricles of the brain, except the want of dilatation of the pupils in the former. This, however, is not a distinction sufficiently characteristic; for it is well known that this symptom is frequently wanting in the dropsy of the ventricles, in the early stages of the affection; and effusion frequently takes place at the same time, both in the ventricles and beneath the tunica arachnoides. The causes and treatment of both, too, are probably the same.

With

With respect to the cure of this disease, the author remarks as follows. 'Punctures and other operations, so useful in different species of dropsies, are, in general, contra-indicated in *hydrocephalo interno*.

'Blisters behind the ears, at theback of the head, to the neck, temples, and between the shoulders, mercurial frictions, have been spiritedly applied; evacuants and mercurials have been repeatedly administered; incisions have been made into the brain itself, even to the ventricles. All have failed. The disorder has ever proved fatal. Medicine had the mortification to see thousands of innocents annually perish with convulsions, comatose, fainting, and other symptoms, under the application of the recited remedies; and it was seldom that any single infant was snatched from the grave by the most judicious practice, devised by gentlemen of the first distinction for learning and skill in the profession. The disorder was commonly discovered too late to be remediable.'

After these remarks the reader will smile at the *originality* of the following indications of cure.

'I. To attract and evacute fluids from the exhalents of the most contiguous parts, by means of blisters, to the sutures and whole hairy scalp, according to the exigency of the case, and to continue the discharge copiously.

'II. To promote perspiration, and stimulate the absorbents by calomel and antimony, and keep the body warm.

'III. To act upon the torpid enervated stomach and intestines, and occasionally to evacuate serum by mercurial and stimulating cathartics.

'IV. To impart tone and vigour to the debilitated habit by tonics of bark, steel, vitriolated zinc, acid, or sweet elixir of vitriol.

'V. The instituting a very dry diet, that the corroborating effects of the tonics may not be counteracted and defeated, by diluting drinks or slops, tea, &c.

'VI. After

'VI. After the cure to still continue the tonics, *dry nourishing diet*,* and warm clothing, to prevent a future relapse.

Some cases are subjoined in proof of the utility of the plan here recommended.

The work is concluded by remarks on the general management of infants, but which are not sufficiently original or important to require particular notice. The following, perhaps, may be quoted as an exception. "The surface of the intestines should be prevented from becoming incrustated with the coagulum of milk adhering to their villous coat, or inspissated mucus; for the lacteal vessels cannot absorb healthful chyle under such circumstances. The infant cannot thrive, as it is commonly called. *Magnesia hydrargyrata*, a preparation of my invention, composed of three fourths magnesia alba and one fourth *hydrargyrus purificatus*, well rubbed and united together in doses from ten to twenty grains twice a day; nitre and æthiops, equal parts, in the same doses; or burnt sponge and æthiops, or cinnabar, are excellent not only to prevent but remove those incrustations; occasionally giving a purgative of the pulv. scammon. cum calomelano, or any other appropriate purge, rhubarb with soda, &c.

ART. VI. *Recherches Physiologiques sur la Vie et la Mort: Physiological Researches on Life and Death. By* XAVIER BICHAT, *Professor of Anatomy and Physiology.* 8vo., 450 pages. Paris, 1801. Imported by T. Boosey, London.

WE have heretofore had occasion to notice some valuable works of this author on anatomical

* The author very judiciously observes, p. 21, "Destroy the source, and the channels conveying superabundant fluids cannot be supplied."

and

and physiological subjects.* The analysis we are about to give of the present, will, we have no doubt, set it in a very favourable point of view.

Life the author defines *the re-union* (ensemble) *of the functions which resist death.* Such is, in fact, the mode of existence of living beings, that every thing that surrounds them tends to their destruction. They are acted on incessantly by inorganic matter; they even exert a continual action on one another, and would soon cease to exist, had they not within themselves a permanent principle of re-action. This principle is the principle of life; unknown in its nature, it can only be appreciated by its phenomena, the most general of which is, an habitual alternation of action on the part of external bodies, and of re-action on the part of the living body itself; an alternation which varies in the different periods of life. In the infant there is a superabundance of life, because the re-action surpasses the action. In the adult state, an equilibrium is established between them, and the vital turgescence of the former disappears. In old age, the re-action of the internal principle diminishes, the action of external bodies remaining the same; at this period life languishes, and advances insensibly towards its natural term, which arrives when all proportion between action and re-action is destroyed. The measure of life, then, in general is, the difference which exists between the effort of the external agents, and that of the internal resistance. The excess of the one announces weakness; the predominance of the other is the indication of its force and energy.

Such is life, considered as a whole: the author proceeds to examine it in detail. He divides life into two species, *animal* and *organic.* Of these, the latter is common to both vegetables and animals; whilst the former is confined to animals exclusively.

**Traité des Membranes.* Medical and Chirurgical Review, vol. 6, p. 544. Also, *Anatomie Generale.* Ibid, vol. 8, p. 454.

Organic

Organic life is compoſed of a continual ſucceſſion of aſſimilation and excretion; by theſe, the individual inceſſantly transforms into its own ſubſtance the molecules of ſurrounding bodies, and afterwards rejects them when become uſeleſs to it. It lives only for itſelf by this claſs of functions; by the other it exiſts abroad: it is the inhabitant of the world, and not, as the vegetable, confined to the ſpot which gave it birth. It feels and perceives the beings which ſurrounds it, reflects on its ſenſations, moves voluntarily according to their influence, and moſt commonly is capable of communicating, by means of the voice, its deſires, its fears, its pleaſures, or its pains. Simple organization is the only condition neceſſary to the former ſpecies of life, the organic. The ſecond, or the animal life, is the excluſive property of the animal kingdom.

Each of the ſpecies of life, the animal and organic, is diviſible into two orders of functions. The firſt order in the *animal* life is directed from the external ſenſitive organs towards the brain; the ſecond, from the brain towards the organs of locomotion and ſpeech. In the *organic* life, one order is deſtined to aſſimilation, the other to the de-aſſimilation or de-compoſition of the ſubſtances which nouriſh the individual.

The author next points out the general differences of the two ſpecies of life, in reſpect to the external forms of their reſpective organs, their modes of action and duration. habits, and vital energy.

He afterwards treats of the origin and developement of the *animal* life, and endeavours to ſhew, that the firſt order of functions does not exiſt in the fœtus; that the fœtus does not, in a word, poſſeſs the faculty of ſenſation. In order to prove this, he thus argues: Let us examine, he ſays, what impreſſions the fœtus is capable of receiving from the organ of touch. It is ſubjected to a conſtant and unvarying temperature; it

ſwims

ſwims in a fluid ; it ſtrikes, as it ſwims, againſt the ſides of the womb : here, then, are three ſources of general ſenſation.

With regard to the two former, they, it is plain, can have little or no effect ; the fœtus can neither be conſcious of the medium in which it ſubſiſts, nor of the heat which penetrates it. All ſenſation, in fact, ſuppoſes a compariſon between the preſent ſtate and the paſt. We do not perceive cold but becauſe we have felt antecedent heat ; if the atmoſphere were of an invariable degree of heat, we ſhould be unable to diſtinguiſh its degree ; the Laplander enjoys himſelf in a climate where the Negro would experience pain, and even death, if he were ſuddenly tranſported to it. It is not at the time of the ſolſtices, but at the equinoxes, that the ſenſations of heat and cold are moſt lively ; becauſe then the more frequent variations give birth to more frequent compariſons between what we feel and what we felt before.

It is with regard to the liquor amnii, the ſame as with heat ; the fœtus does not experience its influence, becauſe the contact of another medium is unknown to it. Before bathing, the external air is not ſenſible to us ; on coming out of the water, its impreſſion is painful ; and why ? The reaſon is, it then affects us, becauſe its action on the cutaneous organ has ſuffered interruption.

Is the ſhock ſuſtained from the ſides of the womb more a cauſe of ſenſation than the liquor amnii or heat ? At firſt we ſhould imagine it was ſo ; becauſe the fœtus being only ſubjected to it at intervals, the ſenſation thence ariſing ſhould be the more vivid. But it is to be remarked, that the denſity of the womb, eſpecially during geſtation, being not much greater than that of water, the impreſſion muſt, on that account, be the leſs. In ſhort, the more external bodies reſemble in their conſiſtence the medium in which we live, the leſs powerful is their action on us.

The air, in a reſpiring animal, is therefore really the point of general compariſon to which he refers all the ſenſations of touch, and the vivacity of the ſenſation is in a direct ratio to the difference of denſity of the air, in reſpect of that of the bodies which are the objects of ſenſation. In the ſame manner, the meaſure of the ſenſations of the fœtus is the exceſs of the denſity of the womb over that of the waters; but this exceſs being inconſiderable, the ſenſation produced is neceſſarily obſcure.

This aſſertion relative to the inſenſibility of the fœtus will become more general, if we conſider that the mucous membranes, the ſeat of touch internally, as the ſkin is externally, have not at this period commenced their functions. After birth, being continually in contact with foreign bodies, they find in theſe a cauſe of irritation, which becomes the more powerful from being inceſſantly renewed. But in the fœtus there is no ſucceſſion of theſe cauſes: it is conſtantly the ſame urine, the ſame meconium, the ſame mucus, which exert their action on the bladder, the inteſtines, and the pituitary membrane.

We may conclude from hence that the general ſenſations of the fœtus are feeble, or hardly exiſt at all, although it is ſurrounded by moſt of the cauſes which are afterwards doomed to excite them. Nor are its particular ſenſations more active; but this is owing to the abſence of exciting cauſes.

The eye, cloſed by the pupillary membrane, the noſtrils ſcarcely yet developed, would not be ſuſceptible of receiving impreſſions, even ſuppoſing light or odours to act on them. The tongue, applied to the palate, is not in contact with any body capable of producing on it the ſenſation of taſte; were it even in contact with the water of the amnios the effect would be nugatory, becauſe, as has been ſaid, where there is no variety of impreſſion there is no ſenſation. Our ſaliva excites taſte in another; to ourſelves it is inſipid.

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The ſenſe of hearing is not arouſed by any noiſe; all is calm and peaceful for the little being.

Thus, it may be ſaid, there are four doors cloſed to the particular ſenſations of the fœtus, and which are not opened for their tranſmiſſion till it has ſeen the day. But it muſt be obſerved, that the inaction of theſe ſenſes draws almoſt inevitably along with it the inactivity of the ſenſe of touch. This ſenſe is, in fact, particularly deſtined to confirm and rectify the ideas acquired by the others; for theſe are frequently the agents of illuſion, whilſt the touch is always the agent of truth. In adapting it to this uſe, nature ſubjects it directly to the will; whilſt light, odours, and ſounds, frequently act on their reſpective organs againſt our inclination.

The exerciſe of the other ſenſes precedes the ſenſe of touch, and even determines it. If a man be born deprived of ſight, of ſmell, and of taſte, can we conceive how the ſenſe of touch can exiſt in him? The fœtus reſembles ſuch a man; it has the inſtruments of touch in its hands already developed, and an object in the ſides of the womb. Nevertheleſs, it is in conſtant inaction; becauſe neither ſeeing, ſmelling, taſting, nor hearing, he is not incited to exert the faculty of the touch.

A ſtriking difference may be remarked, *en paſſant*, between *feeling* and the *ſenſe of touch*, which have hitherto been generally confounded by phyſiologiſts: it is this,—that the will always directs the impreſſions of the latter, whilſt thoſe of the former, which gives us the general ſenſations of heat, cold, dryneſs, and moiſture, &c. are conſtantly independent of its influence.

We may therefore lay it down generally, the author obſerves, that that part of the *animal* life which conſtitutes ſenſation ſcarcely exiſts in the fœtus. This inaction of the organs of ſenſe ſuppoſes a ſimilar inactivity in the nerves which reſide in them, and in the

brain, from whence they are derived; for the function of the one is to transmit, of the other, to perceive impressions. But without objects of transmission and perception, these two acts cannot take place.

From *perception* are derived immediately the faculties of *memory* and *imagination*; from one of these three the *judgment*, and from this last, the *will*.

All this series of faculties which succeed each other in connection have not yet commenced in the fœtus, because it has not yet experienced sensation. The brain is waiting, as it were, in expectation of the act; it has every requisite for acting; it is not excitability, but excitation, that is wanting.

It results from hence, that all the first division of the *animal* life, that which relates to the action of external bodies on our own, is scarcely evolved in the fœtus. It has nothing in its phenomena peculiarly characteristic of animals; its existence resembles rather that of plants; its destruction is of a *living*, not an *animated* being. Hence, in the afflicting alternative of sacrificing it, or exposing the mother to almost certain death, there is no room to hesitate in the choice.

A striking difference exists, the author remarks, between the organs of internal life, or those which contribute to its existence and support; and the external, or those which connect the individual with surrounding beings: the former possess, from the first, the same degree of activity that they ever afterwards enjoy. On the contrary, the organs of external life require a sort of education; they arrive by little and little to the degree of perfection they are capable of. All this is very remarkable with regard to the sensations, the functions of the brain, locomotion, and the voice.

The influence of society on the education of the organs of animal life is next shewn. By this influence certain organs are perfected in their action; but

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one organ alone is ſuſceptible of this at one time; and the ſum of its perfection is commonly in the ratio of the imperfection of others.

Each period of life ſeems to be conſecrated to the perfection of particular organs. In infancy, the action of the ſenſes is eſpecially predominant, and every thing ſeems to contribute to the developement of their functions. The period of life which follows infancy is devoted to the expanſion of the faculties of memory and imagination. When the perception, memory, and imagination, are perfected, the judgment comes into play. At this period the functions of the ſenſes have nothing further to acquire; all the powers are concentrated for the perfecting the judgment.

The author here takes occaſion to inculcate, that we ſhould follow, in regard to artificial education, the ſame laws which govern the natural education of the external organs. The infant ſhould be directed in its ſtudies to the arts of deſign, muſic, &c.; the youth to the ſcience of nomenclature, and to the fine arts, which are under the dominion of the imagination: the adult, to the ſtricter ſciences; to thoſe, the facts of which are connected by reaſoning. The ſtudy of logic, and of mathematics, properly terminated the antient mode of education.

With regard to the ſecond portion of the *animal* life, that by which the individual re-acts on external bodies, the period of infancy is characterized by the number, the frequency, and the feebleneſs of its movements; the adult age, by their vigour; the ſtate of youth holds a middle rank between the two.

On the other hand, the *organic* life is in action from the inſtant that conception takes place. As ſoon as organization is apparent, the heart throws out the blood in all directions; it is the part firſt formed, the firſt in action; and as all the organic phenomena are in

dependence on it, in the ſame manner as the brain governs all thoſe of the *animal* life, we can perceive how the internal functions are ſet in action.

Of the natural termination of the two ſpecies of life. As the *animal* and *organic* life commence and proceed under laws that are widely different, ſo they terminate alſo in a different way. In natural death, the *animal* life terminates long before the *organic*. Obſerve man in the ſtate of extreme old age: he dies in detail; by inches as it were; his external functions ceaſe one after another; all his ſenſes fail ſucceſſively; the ordinary cauſes of ſenſation paſs by without affecting him.

The eye becomes obſcure and confuſed, and ceaſes at length to tranſmit the image of objects: ſounds ſtrike the ear at firſt confuſedly, and ſoon the organ becomes inſenſible to them. The cutaneous covering grows horny, indurated, and deprived, in part, of its veſſels, which become obliterated; it is no longer the ſeat of diſtinct feeling. Beſides this, the continued habit of feeling contributes to diminiſh the ſenſation: all the organs dependent on the ſkin are weakened and periſh. The hair and the beard grow white; deprived of the juices which nouriſh it, a great part of the hair falls off. Odours make but a feeble impreſſion on the organ of ſmelling.

The taſte remains a while, becauſe, connected with the *organic* life, as well as with the *animal*, this ſenſe is neceſſary to the internal functions: thus when all the agreeable ſenſations fly the old man, when their abſence has already broken in part the links which attach him to ſurrounding objects, the ſenſe of taſte ſtill remains. It is the laſt thread on which the happineſs of exiſtence hangs.

Thus inſulated in the midſt of Nature, already deprived in great meaſure of the functions of the ſenſitive organs, the old man ſoon ſees alſo thoſe of the brain ceaſe. There is no longer *perception*, ſcarcely, becauſe

cauſe nothing on the ſide of the ſenſes determines the exerciſe of it; the imagination fails, and ſoon ceaſes to exiſt. The memory of preſent things is deſtroyed; old age forgets in an inſtant what is ſaid to him, becauſe his external ſenſes, weakened and almoſt annihilated, afford no aid to the impreſſion made on the mind. Ideas vaniſh, when the images traced by the ſenſes do not retain their impreſſion; on the contrary, the recollection of the paſt ſtill remains in advanced age: what was learnt long ago, was taught by the ſenſes, or was at leaſt confirmed by them.

Thus it appears, that the external functions become gradually extinct in old age; that the *animal* life has almoſt entirely ceaſed, whilſt the *organic* is ſtill in activity. In this reſpect, the ſtate of an animal about to experience a natural diſſolution, reſembles that which takes place in the womb, and even that of the vegetable, which lives only within itſelf, and for which all Nature is in ſilence. If we reflect, therefore, that ſleep robs us of more than one third of the duration of the *animal* life; if we add this interval of action to its complete abſence in the firſt nine months, and the almoſt perfect inactivity to which it is reduced in the laſt period of exiſtence, it will be eaſy to ſee how great the diſproportion of its duration is, in compariſon with that of the *organic* life, which exerts itſelf in a conſtant manner. Much of this diſproportion, the author thinks, may be attributed to the ſtate of ſociety; in conſequence of which the functions of the animal life are kept continually in exceſs; and in this way the organs are earlier worn out or exhauſted.

This influence of ſociety on the two ſpecies of life, is, to a certain extent, advantageous to man: it divides, by little and little, the links which attach him to ſurrounding objects, and renders him leſs ſenſible of their ultimate ſeparation. His deſtruction reſembles that of a plant, which, for want of external relation, having no

conſciouſneſs of its life, cannot conſequently have any of its death.

The *organic* life, which remains after the almoſt total loſs of the *animal*, does not terminate in the ſame way in natural death as in that which is violent and ſudden. Violent death has really two periods; the firſt is marked by the ſudden ceſſation of reſpiration and the circulation, a double function, which terminates almoſt always with the *animal* life; the ſecond, more tardy in its phenomena, ſhews us the termination of the other *organic* function, which is brought on in a ſlow and gradual manner.

In this caſe, the digeſtive fluid ſtill diſſolves the aliment remaining in the ſtomach; the ſides of which, continuing irritable for a conſiderable length of time, may alſo aſſiſt in the effect. The experiments of the Engliſh and Italian phyſicians on abſorption, have proved, that the function of digeſtion often continues in activity after the general death of the body; if not for ſo long a time as ſome have affirmed, yet for a ſufficiently marked period. Who is ignorant that the excretions of urine, and of foecal matters, the effect of irritability ſtill remaining in the bladder and rectum, take place many hours after ſudden death?

Nutrition is alſo ſtill manifeſt, in regard to the hair and nails; and it would be ſo doubtleſs in all the other parts, as well as the ſecretions, were we able to obſerve the inſenſible movements from which this function reſults. The heart being removed in frogs, the capillary circulation may ſtill be obſerved carried on by the influence of the tonic power alone. The animal heat preſerves itſelf in the greater number of ſudden deaths, in aſphyxies in particular, far beyond the term neceſſary to a dead body's loſing that which was developed at the inſtant when the general life ceaſed.

To theſe obſervations might be added a number of other facts, which would, like them, evince that the *organic* life in ſudden deaths terminates in a ſlow and gradual manner; that theſe deaths interrupt at firſt the harmony of the internal functions; that they arreſt at once the general circulation and reſpiration; but that they exert a ſucceſſive influence only on the other functions. It is the totality at firſt, and afterwards the details, of the *organic* life which terminate in theſe kinds of death.

On the contrary, in that which is the effect of old age, the *toute enſemble* of the functions ceaſes only becauſe each is ſucceſſively extinguiſhed. Each organ loſes its powers by little and little; digeſtion languiſhes; the ſecretions and abſorption ceaſe; the capillary circulation is impeded, and, deprived of the tonic powers which in common govern it, it ſtops altogether. At length death ſuſpends the general circulation in the large veſſels. The heart ceaſes its contractions the laſt of all: this organ is, in fact, the *ultimum moriens.*

Such is the great difference which diſtinguiſhes the death of old age from that which is the effect of ſudden accident: in the one caſe life begins to be extinguiſhed in all the parts, and ceaſes at length in the heart; death exerts its influence from the circumference to the centre. In the other, life becomes extinct in the heart, and afterwards in the particular parts: it is from the centre to the circumference, that death here exhibits its phenomena.

This terminates the firſt part of the work. In the ſecond, the author treats of *Death:* but the conſideration of this muſt be reſerved for a future number.

Art.

ART. VII. *A Diſcourſe introductory to a Courſe of Lectures on Chemiſtry, delivered in the Theatre of the Royal Inſtitution of Great Britain, on the 21ſt January*, 1802. *By* HUMPHRY DAVY, *Profeſſor of Chemiſtry.* 8vo., 26 pages.

IT deſerves to be numbered amongſt the happieſt characteriſtics of the preſent day, that Science is no longer, as heretofore, confined to the ſtudy of the philoſopher, but condeſcends to enter the workſhop of the artizan; lending her aid to forward the purpoſes of common life, and contributing, in a variety of ways, to the comforts and accommodation of mankind. Faſhion, that proteus being, in her ever-varying rounds, ſeems at length to have ſtumbled on Philoſophy, and brought her within her magic circle; a welcome gueſt, if we may truſt to her firſt reception amongſt the giddy throng. The influence of wealth and power can never be better employed than in guiding the public taſte to objects of utility as well as pleaſure; and, in this reſpect, the eſtabliſhment of the Royal Inſtitution promiſes to effect the moſt happy changes. The firſt fruits, at leaſt, augur well for the future.

The diſcourſe before us is intended to point out the various objects of chemical ſcience, and to incite to its purſuit. How well the author has ſucceeded in this double purpoſe, thoſe who are acquainted with his former labours will readily infer. The beſt proof of his eloquence has been already afforded in the number and rank of his auditors, and in the impreſſion they appear to have received.

Of the utility and extent of the ſcience of chemiſtry no one but is well convinced. 'It has,' as the author obſerves, 'for its objects all the ſubſtances found upon our globe. It relates not only to the minute alterations in the external world, which are daily coming under the cognizance of our ſenſes, and which, in conſequence,

consequence, are incapable of affecting the imagination; but likewise to the great changes and convulsions in Nature, which, occurring but seldom, excite our curiosity, or awaken our astonishment.

'The phenomena of combustion, of the solution of different substances in water, of the agencies of fire; the production of rain, hail, and snow, and the conversion of dead matter into living matter by vegetable organs, all belong to chemistry: and, in their various and apparently capricious appearances, can be accurately explained only by an acquaintance with the fundamental and general chemical principles.'

Mr. D. proceeds to point out the influence of chemistry upon mechanical philosophy, natural history, mineralogy, and astronomy, as well as on the arts subservient to the common purposes of life. The working of metals, the arts of bleaching and dying, tanning, and the preparation of leather, depend immediately on chemistry for their principles. Agriculture, which hitherto has been merely a mechanical art, will doubtless owe the greater part of its future improvements to this source.

'Medicine and physiology, those sciences which connect the preservation of the health of the human being with the abstruse philosophy of organized Nature, will be found to have derived from chemistry most of their practical applications; and many of the analogies which have contributed to give to their scattered facts order and systematic arrangement. The art of preparing those substances which operate powerfully upon animal bodies, and which, according to their different modes of exhibition, are either efficient remedies, or active poisons, is purely chemical Indeed, the want of an acquaintance with scientific principles in the processes of pharmacy, has often been productive of dangerous consequences; and the study of the simple and unvarying agencies of dead matter ought

ought ſurely to precede inveſtigations concerning the myſterious and complicated powers of life. Knowing very little of the laws of his own exiſtence, man has nevertheleſs derived ſome uſeful imformation from reſearches concerning the nature of reſpiration, and the compoſition and properties of animal organs, even in their dead ſtate. And if the connection of chemiſtry with phyſiology has given riſe to ſome viſionary and ſeductive theories, yet even this circumſtance has been uſeful to the public mind, in exciting it by doubt, and in leading it to new inveſtigations. A reproach, to a certain degree juſt, has been thrown upon thoſe doctrines known by the name of the chemical phyſiology; for in the applications of them, ſpeculative philoſophers have been guided rather by the analogies of words than of facts. Inſtead of ſlowly endeavouring to lift up the veil concealing the wonderful phenomena of living Nature, full of ardent imaginations, they have vainly and preſumptuouſly attempted to tear it aſunder.'

'Even botany and zoology, as branches of natural hiſtory, though independent of chemiſtry as to their primary claſſifications, yet are related to it, ſo far as they treat of the conſtitution and functions of vegetables and animals. How dependent, in fact, upon chemical proceſſes, are the nouriſhment and growth of organized beings: their various alterations of form, their conſtant production of new ſubſtances, and, finally, their death and decompoſition, in which Nature ſeems to take unto herſelf thoſe elements and conſtituent principles, which for a while ſhe had lent to a ſuperior agent, as the organs and inſtruments of the ſpirit of life!'

In the following paſſages, the obligations we owe to civilization and the cultivation of ſcience are beautifully depicted.

'Man, in what is called a ſtate of nature, is a creature, of almoſt pure ſenſation. Called into activity only

only by positive wants, his life is passed either in satisfying the cravings of the common appetites, or in apathy, or in slumber; living only in moments, he calculates but little on futurity; he has no vivid feelings of hope, or thoughts of permanent and powerful action; and, unable to discover causes, he is either harassed by superstitious dreams, or quietly and passively submitted to the mercy of Nature and the elements. How different is man informed, through the beneficence of the Deity, by science, and the arts! Knowing his wants, and being able to provide for them, he is capable of anticipating future enjoyments, and of connecting hope with an infinite variety of ideas. He is in some measure independent of chance, or accident, for his pleasures. Science has given to him an acquaintance with the different relations of the parts of the external world; and, more than that, it has bestowed upon him powers which may be almost called creative, which have enabled him to modify and change the beings surrounding him; and, by his experiments, to interrogate Nature with power, not simply as a scholar, passive and seeking only to understand her operations, but rather as a master, active with his own instruments.'

'At the beginning of the seventeenth century ver little was known concerning the philosophy of the intimate actions of bodies on each other; and, before this time, vague ideas, superstitious notions, and inaccurate practices, were the only effects of the first efforts of the mind to establish the foundations of chemistry. Men either were astonished and deluded by their first inventions, so as to become visionaries, and to institute researches after imaginary things, or they employed them as instruments for astonishing and deluding others; influenced by their dearest passions and interests, by ambition, or the love of money. Hence arose the dreams of Alchymy concerning the philosopher's stone, and elixir of life. Hence, for a long while, the other metals were destroyed, or rendered useless

by

by experiments designed to transmute them into gold; and for a long while the means of obtaining earthly immortality were sought for amidst the unhealthy vapours of the laboratory. These views of things have passed away, and a new science has gradually arisen. The dim and uncertain twilight of discovery, which gave to objects false or indefinite appearances, has been succeeded by the steady light of truth, which has shewn the external world in its distinct forms, and in its true relations to human powers. The composition of the atmosphere, and the properties of the gases, have been ascertained; the phenomena of electricity have been developed; the lightnings have been taken from the clouds; and, lastly, a new influence has been discovered, which has enabled man to produce, from combinations of dead matter, effects which were formerly occasioned only by animal organs.

'The human mind has been lately active and powerful; but there is very little reason for believing that the period of its greatest strength is passed, or, even that it has yet attained its adult state. We find, in all its exertions, not only the health and vigour, but likewise the awkwardness of youth. It has gained new powers and faculties; but it is, as yet, incapable of using them with readiness and efficacy. Its desires are beyond its abilities; its different parts and organs are not firmly knit together, and they seldom act in perfect unity.'

ART. VIII. *Essai sur la Regeneration des Nerfs. An Essay on the Reproduction of Nerves, By* J. C. H. MEYER, *Professor of Anatomy at Halle. Extracted from the 2d vol. of Reil's Archives of Physiology.* (Bib. Germ. No. 41.)

FROM

FROM the time of Galen to the preſent, a number of anatomiſts have engaged in experiments to determine whether nerves, after being divided, were ſuſceptible of regeneration. A vaſt number of animals have been ſacrificed without the queſtion having been ever ſatisfactorily decided; ſome affirming that regeneration never takes place, whilſt others imagine they have obſerved the contrary; each pretending to ſupport his opinion on the baſis of fact and obſervation.

'Before entering into new reſearches on this point, ſo important to a knowledge of the animal powers, I have thought it beſt,' M. Meyer obſerves, 'to begin with attempting to diſcover the foundation of the contrariety of ſentiment which has prevailed, leſt I ſhould fall into errors ſimilar to thoſe of my predeceſſors. It appears to me, that the foundation of theſe contradictions is, the not having laid down with ſufficient exactneſs the rule by which we can decide on the proper concluſions to be drawn from the experiments; or, that the notions hitherto acquired are not ſufficiently preciſe to determine the reality or non-exiſtence of the reproduction of nerves.

'Galen and ſome of his followers, who firſt occupied themſelves with this object, endeavoured only by their experiments to aſcertain whether the functions of the nerves were re-eſtabliſhed; but their endeavours had, in general, but an unſucceſsful iſſue; for the animals on which they were made periſhed, almoſt all of them, ſoon after the operation.

'Afterwards recourſe was had to the microſcope to examine the ſtructure of nerves, and the organization of their medullary ſubſtance; but this uncertain and fallacious mode gave but unſatisfactory reſults: the objects appeared different to different obſervers, and each one ſaw in the nerves a ſtructure correſponding to the hypotheſis he had framed in his own mind reſpecting the mode of acting in theſe organs.

'Thus,

Thus, Willis took them for bundles of tubes, in which the animal ſpirits circulated. To Ruyſch they appeared as compoſed entirely of fibres. Leeuenhoeck diſcovered only veſſels in them. Deſcartes believed that they were compoſed of ſolid cords united together by cellular ſubſtance. Craanen was of the ſame opinion. Bidloo and Cowper regarded them as ſolid cords, traverſed here and there by cells. Morgagni preſumed that the cells were nothing more than the interſtices of the nervous fibrils. De la Torre aſſerted that the brain and ſpinal marrow are compoſed of globules, united by a viſcous fluid, and that the nerves are compoſed in the ſame manner, with this difference, that the globules in them are diſpoſed in the form of chaplets. To Prochaſka the matter appeared in a different light; and he obſerves, with much propriety, that the aſpect of the object changes altogether, according as we approach or recede from the microſcope. Fontana found that the true medullary fibres are ſurrounded by coverings, diſpoſed in a ſpiral order. Monro ſaw the nervous fibres united in bundles that had a ſerpentine direction, forming an innumerable multitude of convolutions, like the veſſels of the epididymis; but he ſaw alſo the ſame diſpoſition of fibres in all the bodies he examined.

It reſults from all theſe obſervations, that we have acquired no certain notion of the ſtructure of nerves, nor, conſequently, of their re-production. Fontana, however, believed that he ſometimes ſaw a real regeneration of their ſubſtance; but he only formed his opinion from the microſcope. Monro ſaw nerves in frogs, the extremities of which were united after having been divided; but the ſubſtance that united them had not the ſame colour as the nerve itſelf, nor were the functions of thoſe nerves reſtored.

Michaelis believed, that the external appearance of the new ſubſtance, formed between the divided extremities of the nerve, might be admitted as a teſt of the

the regeneration of nerves. According to this rule we might conclude, that, in the greater number of his experiments, there was really a regeneration of them. He ſaw, in the microſcope, the prolongation of the nervous medulla from one end to the other of the regenerated ſubſtance.

'Arnemann ſaw, in ſome caſes, aſperities in the form of hooks on the ſurface of nerves; Molinelli had before perceived and deſcribed this ſort of ſtructure, which Arnemann calls the proper ſtructure of nerve. The latter formally denies the regeneration of theſe organs; becauſe, after having divided them, he never found this ſtructure in the ſubſtance which united their extremities. But there is no more reaſon to rely on this index, than on the others above cited.

'I have myſelf obſerved this phenomenon, eſpecially in the ſmaller animals, as birds and frogs: it ſeems to me to depend on ſome property of the ſheaths of nerves, or of the fluids contained in thoſe ſheaths. One might ſuppoſe, alſo, that it depends on the ſerpentine direction of the medullary fibres themſelves. But in this caſe, the nerve deprived of its covering, ought to appear much longer than in its natural ſtate; or at leaſt it ſhould appear under the ſame form. But this is not the caſe; for a nerve when deprived of its covering does not appear longer than before, and the medullary fibres, when laid bare, ſeem to run parallel one to another. Whence it reſults, that the ſtructure in queſtion, depending only on the organization of the parts exterior to the medullary fibres, one cannot draw any rigorous concluſion againſt the regeneration of nerves from its non-exiſtence.

'Tranſverſe bridles, likewiſe, have been obſerved along the whole length of the nerves, and under which may be diſtinctly obſerved, eſpecially in birds, the delicate fibres of the nervous medulla. But theſe bridles diſappear ſome times during the examination of a

nerve in the microſcope, or when it has been left for ſome time expoſed.

'The external appearance of the regenerated portion of nerve cannot, then, ſerve abſolutely to decide the queſtion. One would be led to believe that Profeſſor Arnemann attached himſelf to the contrary opinion, rather by a prejudice in favour of the ſyſtem he had adopted, than as the reſult of his experiments; and, as if he wiſhed to obviate this objection, he endeavours to ſupport his doctrine, by advancing, as a thing proved, that various parts of the body are incapable of reproducing themſelves; and he cites the arteries as an example. But nothing can be concluded from what paſſes in the arterial ſyſtem as to what may take place in that of the nerves. A nerve is an organ of a nature quite peculiar to itſelf, which, beſides the functions which it can only exerciſe as long as it preſerves a free communication with the brain, has others quite independent of this viſcus. An artery, on the contrary, is in its whole extent, the conductor merely of a fluid indiſpenſibly neceſſary to the preſervation of the animal œconomy, and in none of its parts is its function independent of that of the center of the arterial ſyſtem.

'If the queſtion could be reſolved by analogy, we ſhould decide certainly in favour of the reproduction of nerve. For why ſhould not that which we ſee daily taking place in a ſmall ſcale, do ſo on a large one alſo? When, after a conſiderable wound, we find the cicatrix poſſeſſed in every part of ſenſibility, it is impoſſible to reject the ſuppoſition of the nervous ſubſtance being reproduced.

'Haighton conſiders it as impoſſible that anatomy ſhould ever throw ſufficient light on this matter; and he ſupports this opinion by very concluſive arguments. He thinks that phyſiology alone can determine the queſtion, and with this intention he has made ſome highly intereſting experiments, the reſults

of

of which he has publiſhed.* He inquires, at the ſame time, whether phyſiology be capable of affording certain documents in this reſpect; and although he appears decided for the affirmative of the queſtion, he has furniſhed arguments againſt the infallibility of this deciſion, which are not anſwered in a manner perfectly ſatisfactory.

The whole queſtion reduces itſelf to this: whether the communication between a portion of nerve, ſeparated from its trunk, can reſtore itſelf, ſuch as it was before the ſeparation; and whether there be really produced, between the divided extremities a new medullary ſubſtance, of itſelf capable of reſtoring to the inferior portion of the nerve the faculty of performing the functions that have their principle in the brain.

Neither anatomy nor phyſiology alone is adequate to reſolve it; and in order to obtain its ſolution, it is neceſſary to combine the two ſorts of proof which thoſe ſciences are capable of furniſhing. Anatomy ſhould preſent to our view the nervous medulla reproduced between the two extremities of the divided nerve, whilſt phyſiology, on the other hand, ſhould confirm the regeneration of the nerve by the return of its functions through its whole courſe; thus proving, that the true medullary ſubſtance is extended from one of the portions of the divided nerve, to be united with that of the other.

'Hitherto anatomy, deſtitute of means ſufficiently delicate for examining the nature of the regenerated ſubſtance, has been unable to decide the part of the queſtion which regards itſelf. One cannot truſt to the microſcope for this examination, and the ſcalpel is totally inadequate; for it can neither ſhew the reſemblance of the regenerated to the original medullary ſubſtance, nor point out in what they differ. Maceration, to which recourſe has been had, deſtroys the medullary threads, leaving the cellular tiſſue which

* For an account of theſe, ſee Medical and Chirurgical Review, v. 2, p. 332.

envelopes them; and cannot fail to deceive the observer, who would judge from the appearances which this means presented to him.

'Professor Reil*, nevertheless, has invented a new method to facilitate these researches; he has already employed it with advantage to determine, with greater exactitude than has been hitherto done, the real structure of nerve, and there is great reason to hope that this important discovery will dissipate all doubts in this respect. He has observed, that when a nerve is immersed in nitric acid, its covering, and the cellular tissue that surrounds it, are decomposed by the acid, without the medullary substance having undergone any change. I have likewise profited by this discovery, which led me to make the following experiments.

'*Experiment* 1. July 29, 1796, I cut off a portion, eight lines in length, of the sciatic nerve of the right thigh of an old wolf dog of the middling size.

'The first incision of the nerve occasioned general convulsions; the animal, however, neither parted with his excrements nor urine. The incision of the integuments was two inches in length, and after the operation the lips of the wound were brought together. When let loose, the animal laid himself on the wounded side, and drank some milk; he lost the power of using the limb, which he drew after him in walking, so as to excoriate the toes. The wound was perfectly cured in a few weeks, but the animal, by frequently licking its excoriated toes, laid bare the bones up to the tarsus, and he drew out himself from the wound, with great precaution, the metatarsal bones.

'September the 23d, 1796, I opened the same thigh, and took out the nerve with the cellular tissue surrounding it. The enlargement, or rounded extremity, described by Arnemann, was very distinct at the extremity of the superior portion of the divided nerve;

* *Exercit. anat. de nerv. struc. fascie* I. Halle, 1796.

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it was not harder than the reſt of the nerve. The inferior extremity, ſix lines diſtant from the other, and turned a little forwards, was leſs readily diſtinguiſhed: it was of a reddiſh colour.

'The nerve, with its covering, was immerſed in nitric acid; and when the cellular tiſſue had been diſſolved by the acid, the two extremities of the ſeparated portions were ſeen very diſtinctly. The medulla of all the nervous filaments of the ſuperior extremity was blended together into a ſort of bulb, or rounded end, which appeared whiter than the reſt of the nervous ſubſtance, and the diameter of which was not at all greater than that of the nerve itſelf. The nervous threads of the inferior extremity were ſmaller than thoſe of the upper; they were of a yellowiſh brown colour, and it was eaſy to diſtinguiſh and trace them, as in the former, into the rounded extremity, which was very ſmall, and browner than the filaments themſelves.

'Although in this caſe the two extremities of the divided nerve were not united, we ſee, however, that each of them was ſenſibly prolonged; ſince, immediately after the operation, they were at eight lines diſtance, without reckoning the ſtill further retraction of the divided nerve, whilſt, at this time, there was only an interval of ſix lines between them.

'*Experiment* 2. Auguſt 5th, 1796, I divided tranſverſely, with a pair of ſciſſars, the left ſciatic nerve of an active middle-ſized dog. The inciſion, as in the former caſe, was followed by convulſions; however the animal ate immediately after the operation, and was able to walk, ſupporting himſelf a little on the affected limb. The wound readily healed, and he learned to walk pretty well on this limb, although the firſt phalanges of the toes were commonly incurvated: the member regained its ſenſibility by little and little.

'On the 10th of September, the animal, after languiſhing ſome days. died. The nerve was diſſected and taken out. A rounded portion was diſtinctly ſeen at each extremity of the two parts which had been divided; the upper one was the largeſt. They were reunited by an intermediate ſubſtance, the diameter of which was rather leſs than that of the nerve. The piece was immerſed in nitric acid, which deſtroyed all the cellular tiſſue; when it was no longer poſſible to doubt there had been a true reproduction of the nervous ſubſtance. In each extremity all the medullary fibres were united together at the rounded end, from the centre of which ſhot forth a very large medullary fibre of new production, which went to join itſelf to the other portion of the nerve, and thus eſtabliſhed a communication between them.

'*Experiment* 3. September 26th, I divided the left ſciatic nerve of a middle-ſized bitch, with a very delicate ſcalpel, which I uſed in all the ſucceeding experiments Immediately after the operation, ſhe was able to ſupport herſelf in walking on the affected limb: the wound ſoon healed, and, by the middle of November, ſhe could, though with ſome difficulty, make uſe of the paw to ſcratch herſelf. December the 11th, ſhe walked equally well on the four legs, but in running ſhe reſted more on thoſe which had not been wounded: there was ſcarcely any ſenſibility in the other, yet ſhe frequently licked the toes, which were rather excoriated in walking.

'At this period, the ſciatic nerve having been diſſected, the two extremities were found united by cellular ſubſtance; they had very diſtinctly rounded ends, which were ſituated nearly a line diſtant from each other. The action of the nitric acid diſcovered a very minute fibre, which eſtabliſhed the communication from one extremity to the other, but which appeared to take its origin from the upper.

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'The muſcles of the affected thigh were equally large and red with thoſe of the other, and the inferior part of the divided nerve was neither ſmaller, nor leſs white, than the correſponding portion of the ſame nerve in the other thigh.

Experiment 4. October the firſt, I divided the left tibial nerve of a middle-ſized dog. The extremities of the divided portions ſeparated to the diſtance of a line from each other.

October the 13th, the wound was perfectly healed, and the dog ran very well. I afterwards cut off three lines in length of the left ulnar nerve, above the flexor condyle: the animal immediately voided his urine and excrement.

'On the 12th of December, I examined the ſtate of the nerve, and after having diſſolved the cellular ſubſtance by means of the nitric acid, I found the two extremities ſtill ſeparated; theſe, inſtead of being rounded, were extended in form of a cone, a line in length. The interval between them alſo was no more than a line.

'*Experiment* 5. October the 5th, I cut off a piece of the tibial nerve, two lines long, of a large butcher's bitch.

'On the 18th the wound of the integuments was not yet healed.

'In order to convince myſelf if the two ends of the divided nerve had contributed to the reproduction, or if it depended entirely on the ſuperior portion, I cut off two lines more of the ſciatic nerve of the ſame thigh, not preſuming that the union of the tibial nerve could yet have taken place.

'On the 12th of December I found the tibial nerve reunited; but the fibre of communication appeared extremely ſmall in compariſon with the ſize of the nerve. The ſciatic nerve was not regenerated, nor had its extremities contracted any adheſion; they

were even displaced, though they were not two lines asunder. The muscles of this thigh were very flabby, but the nerves did not differ from those of the other.

'*Experiment* 6. October the 5th I cut off one line in length of the left tibial nerve of a middle-sized dog.

'On the 18th the wound was cicatrized. I then divided the ulnar nerve of the same side above the condyle.

'The 27th the animal died. The second wound was highly inflamed. The extremities of the tibial nerve were united by a medullary fibril: those of the ulnar nerve were not so.

'*Experiment* 7. October the 5th I divided the left tibial nerve of a wolf dog. On the 13th the integuments were cicatrized. The same day I divided the ulnar nerve on the right side above the condyle.

'November the 9th I removed each of those nerves, with their coverings, and placed them in weak nitric acid, which destroyed the cellular substance. I found both united by medullary fibrils; in the tibial nerve the extremities were united in a single ball; in the ulnar nerve there were two very distinct balls, between which was extended the newly-produced fibre.

'It is difficult to graduate the power of the nitric acid so exactly that the anatomical preparation may be fitted for being kept in alcohol. But in this experiment I had the good luck to succeed perfectly; and I gave both the preparations to professor Meckel.

'*Experiment* 8. October the 5th I cut off a line in length of the right tibial nerve of a spaniel dog.

'On the 13th the wound was cicatrized. The same day I divided the right ulnar nerve above the condyle, and on the first of November he died.

'I was

'I was not able to determine, in these latter experiments, whether the sensibility were restored in the parts of which the nerves had been divided, because they never totally lost it. However, the animals appeared to have more at last than during the first days of the operation; and, after being cured, no restraint was perceptible in their gait.

'*Experiment* 9. September the 12th I divided a nerve in several frogs; all of them died a few days after the operation. One alone, of which I divided the spinal marrow, remained alive in pure water, which I took care to change twice a week. It was still able to bring the right thigh to the body, but it could extend neither the one nor the other.

'On the 20th it could extend or retract the right thigh: it was not able to retract the left, but could extend it when brought near to the body. It gave no sign of sensibility in either limb; and I might pierce it with needles, without its seeming to feel the least pain.

'After having dissected the nerves, and destroyed the cellular substance in the nitric acid, I found that a fibril of nerve of the right thigh still communicated with the part of the spinal marrow above the section. The other fibres of the right and left sciatic nerves were displaced, and inclined to the left side, where they were rejoined to a part of the spinal marrow.

'I think these experiments suffice to prove, that nerves, which have been divided, reunite by a true reproduction of their medullary substance; because the regenerated substance does not appear to the eye to differ in any thing from the nervous substance, and because, in proportion as it is reproduced, all the functions that depend on the brain are re-established in the inferior portion of the divided nerve.

'Arnemann, it is true, does not admit that the return of the motive faculty in the inferior part of the nerve is a proof of the reproduction of the medullary substance.

ſubſtance. He believes that the reunion only takes place in the ſheath of the nerve, and that, in conſequence of this union, the lower part of the nerve is irritated by the upper; whence reſults an impreſſion on the muſcles, occaſioning them to contract. But it appears to me abſurd to have recourſe to ſo improbable an hypotheſis to explain a phenomenon which is very naturally explained by the medullary reproduction, of which the experiments cited above leave no room to doubt, although this new ſubſtance does not ſhew the fibrous organization of the reſt of the nerve. For if, in order to aſſimilate the two, it be required that its organization be abſolutely ſimilar to that of the original ſubſtance, it ought not to be admitted that any part of the animal body can regenerate itſelf, not even the bones; ſince it is always eaſy to diſtinguiſh the ſubſtance of theſe from the callus which unites the extremities, even long after the cure.

'What are the conditions moſt favourable to the reproduction of nerves? What is the *maximum* of the extent of the portion of a nervous cord, that can be removed with the hope of being reproduced? How long a time is neceſſary for this reproduction taking place? Theſe are ſo many queſtions which I ſhall not undertake to anſwer; for to do ſo, it is neceſſary to make a multitude of experiments, which I have neither time nor opportunity to engage in.

'It appears that, amongſt other circumſtances, the reproduction takes place more or leſs readily according to the part of the body where the nerve has been divided. I have always obſerved, that it took place with more facility in the tibial nerve, the divided extremities of which cannot be diſplaced by the movement of the muſcles, ſo as to hinder their correſpondence, than in the ulnar nerve, where the newly produced ſubſtance forms more diſtinct knobs. The ſciatic nerve, the extremities of which are the moſt ſubject to be diſplaced by

by the action of the muſcles, has conſtantly ſhewn the moſt imperfect union and reproduction.

'I ſhould obſerve here, that the phenomena attending the regeneration are not reconcilable with the opinion of thoſe who pretend that the nerves are neceſſarily uniform in their fibrils, without interruption or alteration in their whole courſe, ſince the communication of the brain with the part of the divided nerve below the ſection is re-eſtabliſhed, although the union of the divided extremities takes place only by a ſlender thread of new medullary ſubſtance.

'We are abſolutely ignorant by what proceſſes of animal chemiſtry this reproduction of nervous ſubſtance is brought about. It ſeems probable, that the blood furniſhes the elements, and that theſe are conducted and depoſited in the wounded part of the nerve, by a multitude of ſmall veſſels ramifying on its tunics. It is probable alſo that theſe membranes, and the medullary ſubſtance they contain, form a ſort of nucleus, which determines, by chemical affinity, the reunion of the molecules proper for their reproduction. It appears, laſtly, that the firſt depoſition is not preciſely of the ſame nature with the medullary ſubſtance, but that it is inſenſibly aſſimilated by the continued action of the arteries which form it, and by that of the abſorbents which carry away the heterogeneous particles. So in fractured bones gelatine is firſt depoſited. The callus is not at firſt bony, and only becomes ſo after a length of time. Perhaps the ſimple medullary fibre, which united the nerves in thoſe experiments, would in time have acquired greater bulk, and a ſtructure more nearly reſembling that of the nerve it ſelf, in conſequence of the reciprocal action of the exhalent and abſorbent veſſels: this is a point which the farther reſearches of phyſiologiſts muſt determine.'

ART.

ART. IX. *Traité Elementaire de Phyſique, &c. An Elementary Treatiſe on Phyſics, or Natural Philoſophy, preſented in a new Order, after the modern Diſcoveries. By* A. LIBES, *Profeſſor of Phyſics to the Central Schools of Paris, &c.* 8vo., 2 vols., 860 pages, with 19 copper plates. Paris 1801.

PROPERLY ſpeaking, as the author of the treatiſe before us juſtly remarks, there exiſts but one ſcience, that of Nature. This truth, ſo clearly perceived by the antients, ſeems, in the lapſe of time, to have been nearly overlooked. It was reſerved for modern philoſophers to reſtore it, and to break down the barriers which inſulated the ſciences from each other. This ſort of revolution, nevertheleſs, had its diſadvantages, and threatened no ſmall injury to the ſcience of *Phyſics*. The chemiſts and geometricians engroſſed, as it were, its domain between them, or confined it to a few particular phenomena, little calculated to form the baſis of a regular ſcience.

The proper ſtation of the natural philoſopher is between that of the chemiſt and the geometrician. The geometrician does not ſtudy Nature: by aid of a well defined language, and which owes to its extreme conciſeneſs the excluſive privilege of univerſality, he traces, with rapid ſtrides, a rout always certain, but which moſt frequently has but an hypothetical exiſtence. The philoſopher advances with a ſlow pace along the paths of Nature; environed on all ſides with precipices and rocks, he is conſtrained to keep a ſevere watch on all the objects which preſent themſelves; happy if calculation verify the reſult of his reſearches. Geometry, therefore, is not foreign to the ſtudy of phyſics; but its figures and its language are borrowed merely to confirm the teſtimony of experience, its firſt guide; or to draw, from one or more of the facts it atteſts, rigorous concluſions, that lead us to anticipate the reſult of future experiments.

Chemiſtry likewiſe offers its torch to the natural philoſopher, eſpecially when he ſtudies the properties of

of thoſe ſubſtances which had uſurped the privilege of ſimplicity, and the influence of which on a vaſt number of phenomena could not be queſtioned. Before chemiſtry enlightened natural philoſophy, all our knowledge with regard to air, water, caloric, &c. was confined to a few properties of theſe bodies. Meteorology went no farther than the laborious conſtruction of tables, that preſented nothing but an inſulated index of the events which it anounces. Modern chemiſtry has happily afforded to *phyſics* the ſolution of many of the difficulties which attended the latter ſcience; and a happy reciprocity of ſervices has united the two by indiſſoluble bonds.

Chemiſtry and natural hiſtory, like phyſics, are the ſcience of Nature. A difference exiſts, however, between theſe ſeveral ſciences, and which deſerves to be appreciated.

When the antients conſigned themſelves to the ſtudy of nature, they divided their labour, as a means of promoting their ſucceſs. Some charged themſelves with the ſtudy of the properties of bodies; that is, with obſerving carefully the conſtant and uniform appearances they preſent, either in their mode of exiſtence, or of acting: this branch of the ſcience of Nature they called *phyſics*. Others occupied themſelves with the decompoſition of bodies, and with combining them again out of their elements: this they termed *chemiſtry*. Bodies preſent diſtinct characters, depending on external qualities, ſuch as figure, fracture, colour, &c. &c. The ſcience of Nature, conſidered in this laſt point of view, bears the name of *natural hiſtory*.

The ſcience of *Phyſics*, then, has for its object the properties of bodies. *Chemiſtry* ſtudies their principles. *Natural hiſtory* obſerves, it may be ſaid, their phyſiognomy. The naturaliſt, it is true, occupies himſelf with the properties of bodies, but he confines himſelf always with aſcertaining their exiſtence, and leaves to the philoſopher *(phyſicien)* the taſk of inveſtigating cauſes and effects.

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This diviſion of natural ſcience, ſo uſeful in principle, has, nevertheleſs, by being too ſtrictly adhered to, impeded its advancement. So long as phyſics, chemiſtry, and natural hiſtory, were inſulated and independent of each other, they exiſted in a ſtate of feebleneſs and languor. Their rapid progreſs takes its date from the happy epoch when they united their reſpective ſtores to form a common treaſury, ſerving for the advantage of each.

The work before us is divided under ten general heads, or books. The firſt treats of the extention of bodies, their diviſibility, impenetrability, and mobility. In the ſecond, the *vis inertiæ* of ſolids and fluids is conſidered. The *third* treats of gravity: under this head are included the mundane and celeſtial ſyſtems. The *fourth* book treats of affinity, or chemical attraction. The *fifth*, of caloric. The *ſixth* treats of poroſity, compreſſibility, and elaſticity. In the *ſeventh* are conſidered the properties, phyſical and chemical, of atmoſpheric air. *Book the eighth* treats of water, in its different ſtates of aggregation. The *ninth*, of acids. The *tenth*, and laſt, exhibits the phenomena of combuſtion, reſpiration, animal heat, vegetation, and fermentation.'

Such is the extent of the author's plan, which he has rendered highly intereſting in its details. The uncertainty and abuſe of terms is a fertile ſource of error in the generality of books of ſcience. This he has endeavoured to avoid, by giving an exact definition of all that appear ſuſceptible of it. Words were contrived for the expreſſion of our ideas; thoſe which are the ſigns of primary or ſimple ideas, do not admit of definition; and it is hazardous to attempt it with regard to theſe. The tedious puerile diſcuſſions which, for a long time, divided geometricians on the definition of a right line, were probably the fruits of an enterpriſe of this kind. But it is otherwiſe with regard to words expreſſive of complex ideas. A careful definition of theſe is, in fact, ſubmitting them to a ſort of analyſis, which, by laying aſide every thing equivocal, dries up the moſt fruitful ſource of errors.

MISCELLANEOUS.

§ 1. *Report from the Committee on* Dr. Jenner's *Petition, reſpecting his Diſcovery of Vaccine Inoculation.* Dated 6th May, 1802.

[Dr. Jenner's petition to the Houſe of Commons for a remuneration for his introduction of the Vaccine Inoculation, with the proceedings thereon, is undoubtedly a ſubject of great intereſt to the profeſſion at large. We have, therefore, tranſcribed the Report made by the Committee to the Houſe, together with ſuch parts of the evidence, and other documents, as tend to throw light on the real time and circumſtances of the diſcovery, and which will enable the reader to eſtimate the claim to priority which has been ſet up.]

REPORT.

"THE Committee, to whom the petition of Edward Jenner, doctor of phyſic, was referred, have, purſuant to the Order of the Houſe, examined the matter thereof; which is divided into three diſtinct heads of inquiry:

"The utility of the diſcovery itſelf, which is the foundation of the petition;

"The right of the petitioner to claim the diſcovery

"The advantage, in point of medical practice, and pecuniary emolument, which he has derived from it.

"Upon the firſt head, a number of witneſſes of the higheſt characters, and moſt extenſive experience in the profeſſion, were examined, whoſe names, with the ſubſtance of their reſpective evidence (ſtrongly confirmed by their general practice, as well as by that in their own families) appear in the appendix; nor was it for want of the teſtimony

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of many other equally reſpectable phyſicians and ſurgeons, whom the petitioner was deſirous of producing, that many other names are not inſerted; but becauſe your Committee, after having received ſo conſiderable a body of evidence to the ſame purport, and with ſo little variation in opinion, thought that his caſe could ſuſtain no injury in being left to reſt upon the concurring depoſitions of thoſe already examined, who had both the moſt ample experience of the facts, and the beſt means of forming an opinion upon them. The teſtimony alſo of ſome perſons not profeſſional has been admitted, who could ſpeak to occurrences that tend to illuſtrate particular points connected with the ſubject. The reſult, as it appears to your Committee, which may be collected from the oral teſtimony of theſe Gentlemen (with the exception of three of them), is, that the diſcovery of Vaccine Inoculation is of the moſt general utility, inaſmuch as it introduces a milder diſorder in the place of the inoculated ſmall pox, which is not capable of being communicated by contagion; that it does not excite other humours or diſorders in the conſtitution; that it has not been known, in any one inſtance, to prove fatal; that the inoculation may be ſafely performed at all times of life (which is known not to be the caſe with regard to the inoculation of the ſmall pox) in the earlieſt infancy, as well as during pregnancy, and in old age; and that it tends to eradicate, and, if its uſe becomes univerſal, muſt abſolutely extinguiſh one of the moſt deſtructive diſorders by which the human race has been viſited.

"The written evidence which is inſerted in the appendix (for your Committee have judged it proper to make a ſelection from a great maſs, of what appeared moſt important) is more various, but directed to the ſame objects: part of it relates to the very extenſive and ſucceſsful practice of this mode of inoculation in every quarter of the globe, the efficacy of which does not ſeem abated by the cold of the northern, nor the heat of the ſouthern and tropical climates; and though there are no means of examining the authors from whence ſome of theſe atteſtations come, it would be an act of injuſtice to the petitioner to exclude theſe important documents, which ſhew the conſideration in which this diſcovery is held, and the benefit with which it has been attended in ſo many other countries, to at leaſt as great an extent as in our own.

"As a compariſon between this new practice and the inoculated ſmall pox, forms a principal conſideration in the preſent inquiry, ſome

facts

facts, with regard to the latter, engaged the attention of your Committee, and they have inſerted in the appendix (No. 44) ſtatements of the mortality occaſioned by the ſmall pox in forty-two years before inoculation was practiſed in England, and of the 42 years from 1731 to 1772; the reſult of which appears to be an increaſe of deaths amounting to 17 in every 1000; the general average giving 72 in every 1000 during the firſt 42 years, and 89 in the 42 years ending with 1772, ſo as to make the whole exceſs of deaths in that latter period, 1742. The increaſe of mortality is ſtated by another witneſs (No. 4) to be as 95 to 70, comparing the concluding 30 years with the firſt 30 of the laſt century, and the average annual mortality from ſmall pox to have been latterly about 2000; for though individual lives are certainly preſerved, and it is true that a ſmaller loſs happens in equal numbers who undergo the ſmall pox now than there was formerly; yet it muſt be admitted that the general prevalence of inoculation tends to ſpread and multiply the diſeaſe itſelf; of which, though the violence be much abated by the modern mode of treatment, the contagious quality remains in full force. It deſerves alſo to be noticed, that the deaths under the inoculated ſort of ſmall pox, with all the improvements of modern experience, are not inconſiderable; it is ſtated by one of the witneſſes at about one in every 300 throughout England (No. 35); by another, as about one in every 100 in London (No. 38); while the loſs in the natural ſmall pox is probably not leſs than one in ſix (No. 37); nor ought it to be overlooked, that miſtakes have been known to ariſe in the inoculated ſmall pox, and inſtances are cited by ſome of the witneſſes, in which perſons ſuppoſed to have gone through the ſmall pox by inoculation, have caught it afterwards in the natural way (Nos. 21 and 41); the general laws of vaccine and variolous diſeaſe are extremely ſimilar, and it is not ſurpriſing that they ſhould reſemble each other in their anomalies.

"A ſpurious or imperfect ſort of Cow Pox having been mentioned in ſome of the examinations, your Committee have been particularly diligent in their inquiries into every individual caſe that came within their notice, where ſuſpicions had ariſen, or facts were alleged, tending to bring into doubt the preventive power of vaccine inoculation; and although, for the reaſons before given, they have reſtricted and abridged the proofs in favour of this practice, they have thought proper to withhold no part of the evidence that has been received relative to the caſes that appear to controvert it: of which it will be ob-

ſerved that ſome (Appendix, Nos. 31, 32, and 33) evidently reſolve themſelves into variolous infection, taken previouſly to the vaccine inoculation; others (Appendix, Nos. 33 and 40) into the patient not having taken the cow pox at all; others, again (No. 25), from the vaccine matter being, by want of attention in preſerving it, decompoſed, or mixed with variolous matter, or from the fluid being taken at too late a period of the puſtule; to which laſt cauſe it ſeems probable that moſt of the errors and dubious caſes are to be referred (No. 20). All the practitioners agree, that there is no difficulty in diſtinguiſhing the real diſorder from any ſpurious or imperfect appearance; and that the regular progreſs of the puſtule itſelf, if attended to, cannot be miſtaken.

"Some caſes (Nos. 45, 46, 47, 48, and 49) are not explained by any particular evidence applied to them in a ſatisfactory manner: but in leaving them to have ſuch weight as they may appear to deſerve, your Committee cannot avoid recurring to the multitude of inſtances in which endeavours have been uſed to communicate the ſmall pox to patients who have been known to go through the regular vaccine diſeaſe, in which neither repeated inoculations nor expoſure to the moſt malignant ſmall pox, have been able to produce any effect (Appendix, Nos. 6, 9, 16, 36).

"Upon the ſecond head, the whole of the oral depoſitions, as well as all the written documents from abroad, are uniform and deciſive in favour of Dr. Jenner's claim to originality in the diſcovery; but as ſome pretenſions have been advanced to a knowledge, at leaſt, of this practice before Dr. Jenner's publications, it may be proper to notice, ſhortly, what the nature of thoſe claims is, and in what manner they bear upon this part of the petitioner's caſe. The extracts, which can be conſidered as in any degree material, are contained in Appendix (Nos. 50, 51, and 52). The diſorder itſelf, and its ſpecific property of ſecuring againſt ſmall pox infection, was not a diſcovery of Dr. Jenner's, nor of any of thoſe whoſe writings are referred to; for in various parts of England, in Glouceſterſhire and Devonſhire particularly, there was an opinion of that ſort current among the common people employed in dairies, which the obſervations of inoculators for the ſmall pox tended to confirm. It appears not improbable, that in ſome very rare inſtances this knowledge was carried one ſtep farther, and that the cow pox was communicated either by handling the teat, or by inoculation from the animal for the purpoſe, and with the intention

of

of ſecuring againſt the danger of ſmall pox: but the practice of which Dr. Jenner aſſerts himſelf to be the original inventor, is, the inoculation from one human being to another, and the mode of transferring, indefinitely, the vaccine matter, without any diminution of its ſpecific power, to which it does not appear that any perſon has ever alleged a title; and the papers and experiments, whatever accuracy of obſervation, and ſpirit of reſearch, they may evince in their reſpective authors, and to whatever extent they may be ſuppoſed to go, as they were never given to the public, ſo neither is there any intimation that they were imparted to Dr. Jenner; nor is it contended that the world became acquainted with this diſcovery by any other means than by the courſe of trials conducted by the petitioner, and by his ample and unreſerved communications.

"Upon the laſt diviſion of the ſubject, the evidence of ſeveral perſons has been received, who were acquainted with the medical practice and former ſituation of Dr. Jenner (Appendix No. 40), which confirm the allegation contained in the petition, that he has not only reaped no advantage from his diſcovery, but that he has been a conſiderable loſer by the perſevering attention which he has beſtowed upon this one ſubject, to the neglect of his other buſineſs, without an opportunity of replacing himſelf in the ſituation which a deſire of publiſhing and diffuſing more extenſively, and eſtabliſhing beyond the reach of controverſy, the practice itſelf, induced him to quit. What his gains might probably have been, if he had been ſolicitous to keep the ſecret within his own practice, and that of his own immediate pupils, as far as medical men in great practice themſelves can form a conjectural opinion, may be collected from the teſtimonies expreſſed in Appendix (Nos. 35 to 43), in which no more than juſtice is done to the liberality and public ſpirit of the petitioner, in conſidering the propagation and extenſion of this important diſcovery, and in rendering it rather of univerſal utility to the human race, than of emolument to himſelf.

"Dr. Edward Jenner begged leave to ſubmit to the Committee vouchers from correſpondents in various parts of the globe, referring to at leaſt one hundred thouſand caſes. Of theſe teſtimonials your Committee have ſelected the moſt important, and annexed them in the Appendix to this Report."

[Then follows the *Appendix* to the report, containing numerous teſtimonials in favour of the vaccine inoculation itſelf, as well as of Dr.

Jenner's claim to the diſcovery of the practice. With regard to the former point, the value and importance of the practice, it were ſuperfluous now to adduce any proofs. The facts which relate to the origin and diſcovery of the practice will be found intereſting; theſe, therefore, we have thought it right to ſelect. We have, likewiſe, brought forward the few inſtances adduced as exceptions to the univerſally preventive power of the vaccine, in regard to the variolous diſeaſe: they appear entitled to attention.]

"No. 2.

"Mr. Home, F.R.S., Member of the Royal College of Surgeons, and Surgeon to St. George's Hoſpital, knows that in 1788 Dr. Jenner gave to the late Mr. J. Hunter a drawing, with a vaccine puſtule formed; and propoſed to Mr. Hunter the vaccine inoculation, as a mode of preventing the ſmall pox. Mr. Hunter adviſed Dr. Jenner to proſecute the diſcovery, but ſaid the practice was too new for him to decide upon its efficacy. Mr. Home's own opinion is beſt ſtated by having had one of his own children inoculated with vaccine matter, and he is perfectly ſatisfied with its ſecurity; and, whenever he has been called in to inoculate children of delicate conſtitutions for the ſmall pox, he has always objected to it, and uſed his influence and advice in favour of vaccine inoculation, which diſturbs the conſtitution leſs than almoſt any other diſeaſe."

"No. 17.

"Sir George Baker, F. R. S. Fellow of the Royal College of Phyſicians, and phyſician to their Majeſties, recollects having had a correſpondence with the Rev. Herman Drew,* of Abbots, in Devonſhire, twenty-five years ago; the reſult was, that there was an opinion prevailing in his neighbourhood that dairy-maids who happened to get the cow pox were no longer ſubjected to accidental infection of the ſmall pox. The papers relating to this ſubject were burnt by accident. He knows of no inſtance of the vaccine inoculation creating or exciting any conſtitutional diſorder, or of its being fatal."

"No. 18.

"Dr. Pearſon, F. R. S. Phyſician to St. George's Hoſpital, and to the Vaccine Pock Inſtitution, ſtates himſelf to have been acquainted with the practice of vaccine inoculation ſince 1799: he derived his knowledge in the firſt inſtance from Dr. Jenner, afterwards he got information from other ſources; [refers to letters from Dr. Pulteney

* No. 52.

and

and the Rev. Herman Drew, dated in 1790,* containing an account from Mr. Dolling, at Blandford, of perſons who have had the cow pox from the cow, being inoculated with the ſmall pox, without having received any infection therefrom; and particularly in one caſe, related by Dr. Pulteney, of a farmer, in Dorſetſhire, who inoculated his wife and children with matter taken from the teat of a cow, who all did well, and were afterwards inoculated for the ſmall pox, but no eruptions followed.] Upon being aſked, whether the information contained in theſe letters aroſe from Dr. Jenner's publication of his diſcovery, or from previous knowledge of vaccine inoculation? he anſwered, that he imagined they were independent of each other: he ſtates, that the diſcovery of inoculating with the vaccine matter, from one human being to another, is excluſively Dr. Jenner's. He further ſtated, that although Dr. Jenner firſt ſet on foot the vaccine inoculation, it was eſtabliſhed by the extenſive practice of other perſons, to wit, Dr. Woodville and himſelf, who both publiſhed treatiſes and liſts of caſes on the ſubject; he ſaid, that they had in the courſe of this practice diſcovered ſome errors in the theory and opinions firſt publiſhed by Dr. Jenner; which opinions, however, he ſaid, on being queſtioned, Dr. Jenner had not retracted or admitted to be erroneous; and being aſked, whether Mr. Cline had not inoculated with vaccine matter furniſhed by Dr. Jenner, before he and Dr. Woodville began the practice? he ſaid, he could not diſtinctly recollect."

"No. 23.

"Dr. Lind, phyſician to Haſlar Hoſpital, had viſited a marine named Clark, there, who was ſtated to have received the ſmall pox after vaccine inoculation; he thought it the ſmall pox; the medical men who ſaw Clark were divided in their opinions, but from the continuance of the diſorder, rather inclined to think it ſmall pox: he ſaid, however, that there were ſome ſymptoms which might induce a contrary opinion, ſuch as a ſhort duration of the puſtules, and none appearing round the inoculated part; a ſecond inoculation with variolous matter does ſometimes, but rarely, produce ſhort-lived eruptions. Some children were inoculated with the ſame matter as Clark was, and had eruptions like the ſmall pox, but they laſted a ſhorter time than uſual, and ſome dried before others: the chicken pox is often attended with the laſt-mentioned ſymptoms. Mr. Rickman had inoculated Clark with the vaccine matter, but he was only the fifth or

* No. 51.

ſixth patient he had ſo inoculated. Mr. Rickman inoculated Clark afterwards with variolous matter, not from any ſuſpicion that the vaccine had not ſucceeded, but he always did ſo for caution."

"No. 26.

"Mr. Gardner has known Dr. Jenner more than twenty-two years, and been in the conſtant practice of hearing his medical opinions and diſcoveries. It was in the month of May, 1780, that Dr. Jenner firſt informed him of the particular nature of the cow pox as a ſure preventive from the ſmall pox, and the theory he had framed on the ſubject; declaring his full and perfect confidence that it might be continued in perpetuity of inoculation from one human being to another, in the ſame way with the ſmall pox."

"No. 27.

"Mr. Keate, Surgeon General to the Army, and Surgeon to the Queen, and to His Royal Highneſs the Prince of Wales, ſtated, that ſome papers given to him* relative to inoculation, by his nephew, and mentioned by Dr. Pearſon, had never been made public; and that in 1799, in conſequence of ſeeing a number of Dr. Pearſon's patients, he had practiſed and endeavoured to extend vaccine inoculation in the army, and to the poor of London. He thinks it eaſy to diſtinguiſh whether the patient has effectually had the diſorder; that it excites no humours or diſorders in the conſtitution. He conſiders Dr. Jenner as the perſon to whom much merit is due for publiſhing the caſes of vaccine inoculation, which practice he never heard of before that publication."

"No. 28.

"Mr. Robert Keate, Member of the Royal College of Surgeons, and Aſſiſtant-ſurgeon to St. George's Hoſpital, ſtates, that the papers alluded to by his uncle were given to him by Mr. Naſh, the ſon of the author; that he underſtood they were written about 1781; and being aſked whether Dr. Jenner was known to Mr. Naſh, ſaid, he had heard from Mr. Battiſcombe yeſterday, that he believed he had heard Mr. Naſh (the author of theſe papers), and his ſiſter, mention the name of Dr. Jenner, but was not at all certain it was this Dr. Jenner."

"No. 29.

"Mr. Thomas Naſh ſaid, the papers were written by his father between the years 1781 and 1785; that at his death, they were ſent

* No. 59.

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by his mother to her brother, Mr. Battiſcombe, who, without making them public, or divulging their contents, gave them to the witneſs in 1795 or 1796; he kept them to himſelf until 1799 or 1800, when he gave them to Mr. Robert Keate; he heard from rumour, that Dr. Jenner might have been known to his father; heard it from Mr. Robert Keate; he was inoculated by his father in 1781, and ſuppoſes it might have been with vaccine matter, as it appears from the manuſcripts, and by information from his mother, that his father was at that time making experiments of vaccine inoculation."

"No. 34.

"Dr. Rowley, Licentiate of the Royal College of Phyſicians, was at Oxford laſt July, and was informed by Profeſſor Wall, and other profeſſors, that there were ſeveral children in Oxford who had received the ſmall pox after having been inoculated with the cow pox. He viſited the Mary-le-bone Infirmary, and ſaw two children in the ſmall pox; the father of the children informed him that Dr. Williams and Mr. Jenner had inoculated theſe children in the preceding autumn, and ſuppoſing his children ſecure from the ſmall pox, he had permitted them to go where the ſmall pox exiſted, which they caught; one of them died, the other recovered. He never had an opportunity of mentioning this circumſtance to Dr. Wall afterwards. He did not examine the arms of the children, where the cow pox inoculation was ſaid to have taken place. He had not ſeen many caſes of ſpurious cow pox; he has ſeen ulcers ſucceed in the beginning of vaccine inoculation, but that has been entirely obviated by the ſubſequent practice; he does not know by what change in the practice theſe diſaſtrous circumſtances are now prevented; he has ſeen ſymptoms of a worſe nature ariſe after ſmall pox inoculation, particularly ſcrophula and abſceſſes, which have appeared in different parts, and at laſt proved fatal."

"No. 45.

"*Caſe of diſtinct ſmall pox by inoculation, ſubſequent to the patient's having paſſed through cow pox.*

"George Clark, a marine, aged twenty years, was inoculated by Mr. Rickman, Surgeon of the Portſmouth Diviſion of Marines, with vaccine virus, between the end of October 1800 and the month of April following; and from that Gentleman's report of his caſe, it appears, that he was infected with cow pox in the genuine and ſatisfactory manner.

"March 24th, the ſaid George Clark was inoculated by Mr. Rickman with variolous matter in his left arm, by two punctures from the natural diſeaſe. On the 31ſt, at nine o'clock at night, he was attacked by ſymptoms which uſually precede the eruption of the ſmall pox, namely, coldneſs, ſhivering, ſucceeded by heat, thirſt, nauſea, and pains in the head and breaſt. April 1ſt, on his being received into the hoſpital (about four o'clock in the afternoon) his pulſe was 98, and the ſymptoms that appeared on the preceding night gave him great uneaſineſs. Upon examining his arm where the variolous matter had been inſerted, I obſerved that the punctures were elevated, and the inflammation which ſurrounded them ſo great, as, with the other ſymptoms, to preclude the ſmalleſt doubt of his labouring under the influence of ſmall pox infection by inoculation.

"April 2d, in the morning, an efflorescence was obſerved on his noſe and right cheek, and ſeveral puſtules were indiſtinctly perceived. On the morning of the 3d, theſe puſtules, with many others on his face, arms, and breaſt, were very ſtrongly marked; and during that ſtage of the eruption, the ſymptoms which preceded it had conſiderably abated. On the 4th, the eruption was completed, conſiſting of 90 puſtules on his face and head, and 132 on his body and extremities. On the 5th, his ſymptomatic fever entirely diſappeared, and, excepting a ſlight affection of his throat, he had no complaint. Subſequent to the 5th, the eruption on his face advanced in a progreſſive ſtate of maturation till the cloſe of the 9th, and on his body and extremities until the 12th; during the periods when the puſtules became perfectly matured, they were remarkably prominent, and contained good pus. On his face the whole of the eruption was not completely cruſted before the 13th, and on his body and extremities not until the 19th inſtant.

"From the commencement of the eruption to its final termination, the profeſſional gentlemen belonging to this eſtabliſhment daily viſited him, and at my particular deſire ſeveral of the principal medical gentlemen from Portſmouth, Portſea, Goſport, Fareham, and Titchfield, frequently attended my viſitations, and ſome of them had the goodneſs to take matter from the patient for further elucidating the caſe, and promiſed to acquaint me with the reſult of their experiments. (Signed) R. HOPE, M. D."

"*Royal Hoſpital, Haſlar,*
April 20th, 1802.

Royal

Royal Hoſpital, Haſlar, April 30th, 1802.

"SIR,

"I have the honour to acquaint you, for the information of the Committee of the Houſe of Commons on Dr. Jenner's petition, that ſeveral children, who were inoculated with matter taken from George Clark, as ſtated in my report of his caſe to the Admiralty and Sick and Wounded Boards, on the 20th inſtant, received the infection, in ſpite of the 'evidence which the Committee received from medical perſons in Portſea, which ſtated conſiderable doubts as to its being that diſeaſe,' and are now paſſing through the different ſtages of the ſmall pox in a ſtrongly and ſatisfactorily marked manner. As I feel it a ſacred duty which I owe, not only to my King and Country, but myſelf alſo, to ſtate facts when called upon, on a ſubject of ſuch national importance, I ſhall offer no apology for this intruſion upon your time, and am,

"Sir,

"Your moſt obedient, humble ſervant,

"R. HOPE, M. D.

"And Second Phyſician to the Hoſpital."

"*To Admiral Berkley, M. P. Chairman of the Committee for Dr. Jenner's Petition, London.*"

"No. 46.

* "Sarah Dyer, wife of William Dyer, now reſiding in the pariſh of Old Sodbury, in the county of Glouceſter, ſaith, that when ſhe was about ſixteen years of age, ſhe then lived a ſervant to James Hatherell, of Combſend farm, in the ſaid pariſh of Old Sodbury; that the cow pox appeared among the cows; that ſhe was infected with the diſtemper, and had ſeveral puſtules broke out upon different partsof her body, and one particularly large upon her arm; was very ſore under the arm-pits, and could hardly raiſe her hands to her head; that her miſtreſs told her ſhe would have no occaſion to fear the ſmall pox in future; that about eleven years after ſhe was inoculated with the ſmall pox; had the diſtemper ſo ſeverely, and the burden ſo great, that ſhe was blind for ſix days.

"*Old Sodbury, 12th February,* 1802."

* No. 40.

"*High-*

" No. 47.

" *High-Wycomb, 29th March,* 1802.

" SIR,

" I was yeſterday detained at a diſtance from home, or ſhould have had the honour of replying to your letter.

" In the month of June, 1800, I inoculated a family of four children with the cow pox. The infection was ſent me from town, by a perſon who aſſured me he received it from Mr. Jenner, brother to the Doctor.

" I watched the progreſs accurately, and was well ſatisfied that all the ſymptoms exactly agreed with thoſe deſcribed by the advocates of this diſeaſe. In the ſpring of laſt year, at a general inoculation for the ſmall pox, I made the experiments on the ſame children, when two moſt certainly did receive it, and two did not; and the moſt ſtriking proof of this fact is, that others were inoculated from them, and had the diſeaſe rather in a heavy degree. In another family, alſo, the ſame failure occurred, and in two inſtances where the perſons declared they had gone through the cow pox many years before the ſmall pox evidently was taken.

" I beg leave to ſubſcribe myſelf,

" SIR,

" Your moſt obedient and very humble ſervant,

" R. B. SLATER."

" No. 48.

" SIR,

" In anſwer to your letter received this morning, I beg leave to inform you, that, in the latter end of March laſt year, two children were inoculated for the cow pox by a young gentleman, a pupil of mine, and that I ſaw the children in the progreſs of the diſorder, and they appeared to have received the infection properly, and were judged by us to be ſecure from the variolous infection. A few months afterward they were ſeized with the natural ſmall pox, of which one of them died. They were the children of a ſervant of Sir Digby Mackworth, of this place.

" I am, Sir,

" Your moſt obedient ſervant,

" JOHN GROSVENOR."

" *Oxford, March 27th,* 1802."*

* No. 57.

" No. 49.

"No. 49.

"SIR,

"I had the honour to receive your letter yeſterday, but the poſt does not go out on a Saturday evening. I have been in the profeſſion of ſurgery more than thirty years, and during that time have had frequent opportunities of communicating the ſmall pox to patients, after an interval of ſeveral years, who had been infected by the vaccine matter in its genuine ſtate.

"I have now the honour to lay before you a caſe which lately occurred at Bath.* John Parker, about four years of age, was inoculated with the vaccine matter, procured from Dr. Jenner by a friend, and at that time he was preſented with engraved plates, which repreſent the progreſs of the puſtules as the eruptive fever advances: they were found to correſpond minutely, and the child became feveriſh at the uſual period, with every ſymptom which attends the cow pox. Eight months afterwards another child was inoculated for the ſmall pox in the ſame houſe, as no ſuſpicions were entertained of John Parker's taking that diſeaſe, and got through it favourably; but John Parker ſoon became feveriſh, and after ſeveral days illneſs an eruption made its appearance, which proved to be the ſmall pox. Several children were inoculated with ripe pus taken from Parker, and they all received the ſmall pox. I do not advance this circumſtance on report only, for I ſeveral times viſited this child during the progreſs of the diſeaſe.

"Should you, Sir, think my evidence neceſſary before your Honourable Committee, I muſt beg leave to inform you that I am under a ſubpœna to attend at the aſſizes held at Taunton, on the 2d of April.

"I have the honour to be,

"*Bath, March* 28, 1802." "SIR,

"Your obedient ſervant,

"JAMES NOOTH."

"No. 50.

Extracts from manuſcripts of Mr. Naſh, delivered to your Committee by Mr. Keate, as far as they relate to cow pox.

"It is rather remarkable that no writer ſhould have taken notice of the cow pox."

"I have never heard of one having the ſmall pox who ever had the cow pox. The cow pox certainly prevents a perſon from having the ſmall pox." "I have

* No. 13.

"I have now inoculated above ſixty perſons who have been reported to have had the cow pox, and I believe at leaſt forty of them I could not infect with the variolous virus; the other twenty, or nearly that number, I think it very reaſonable to preſume (as they were no judges) had not the real cow pox."

"It is not my opinion only, but that of ſeveral other medical gentlemen, that convinces me the cow pox is a prophylactick for the ſmall pox,"

"I have not been able to diſcover that the human ſpecies get it from the cows in any other manner than by contact with the parts immediately infected, ſuch as in milking; neither do I apprehend that one of the human ſpecies can communicate it to another but by the ſame means, as I have known ſome of the inhabitants of a houſe where it was eſcape it, but none of thoſe who lay in the ſame bed with a diſeaſed perſon."

"In Mrs. Scammel and Mrs. Bracher, inoculation produced no eruption, no ſickneſs, and little or no ſuppuration of the arm, the place punctured not being bigger, when inflamed and ſuppurated, than a large pin's head. It frequently leaves conſiderable marks, which are much larger than thoſe of the ſmall pox; as large (I have meaſured ſome) as a ſilver three-pence."

"No. 51.

Extract of a letter from the Rev. Herman Drew to Dr. Pearſon, dated Wotton, September 7, 1798.

"Having an opportunity, I communicated your queries relative to the cow pox to Mr. Dolling, an inoculator at Blandford, who is in very extenſive practice, and I am favoured with the following anſwers:

"I can only ſay, I have inoculated for the ſmall pox many hundreds, that ſaid they had had the cow pox; very few of them took the infection, ſo as to produce the ſmall pox; and thoſe, I am inclined to think, deceived themſelves in regard to their having had the cow pox. I inoculated ſeven children for one perſon, the eldeſt not ten years old; five of theſe children the mother had made play with cow's teats that had the cow pox, and they received infection from the cow; theſe five children had not the ſmall pox, the other two had.

"Mr. Juſtins, a farmer at Yetminſter, in Dorſet, inoculated his wife and children with matter taken from the teats of a cow that had

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the cow pox; in about a week from the time of inoculation their arms were very much inflamed; the patients very ill; the man ſo much alarmed as to call in medical aſſiſtance (Mr. Meach, of Cerne); the patients ſoon got well; they have ſince been inoculated for the ſmall pox by Mr. Trobridge of Cerne, but did not have it."

"No. 52.

Extract of a letter from Mr. Nicholas Bragge to Sir William Elford, Bart. (a member of your Committee), dated Axminſter, April 12th, 1802.

"It is now more than thirty years ago that I firſt made experiments, and proved that the vaccine diſeaſe was a preſervative againſt the ſmall pox; and it is, I believe, more than twenty years ago, that, through the Rev. Herman Drew, I acquainted Sir George Baker with the obſervations and experiments I had then made, which I am certain Sir George will readily acknowledge. Unhappily an accident by fire has deprived me of having recourſe to them now, but my memory will ſupply me with enough to convince you that Dr. Jenner is not the only perſon entitled to the reward that may be thought deſerving for ſuch a diſcovery. It is now, I believe, twenty years ago that Mrs. Rendall, the wife of a reſpectable farmer in the pariſh of Whitechurch, near Lyme, in Dorſetſhire (who is at this time a tenant to Lady Caroline Damer, in the ſame pariſh, for which I have been concerned as an apothecary for the poor ever ſince I have been in buſineſs), inoculated herſelf and three or four children for it; and thoſe children, who have long arrived at manhood, have ſince inoculated their friends and neighbours whenever an opportunity offered."*

Extract

* It is extremely unfortunate for this gentleman, that accident ſhould have deprived him of documents which would have eſtabliſhed his claim to the diſcovery of the preventive power of the vaccine diſeaſe, or, at leaſt, the proof of his having made experiments on the ſubject ſo long ago, and previous to Dr. Jenner's notice of it. Yet the fact, from the teſtimony of Mr. Tucker, a moſt reſpectable magiſtrate in the neighbourhood, cannot be doubted. The want of recollection in Sir George Baker is not a little ſtrange; and it is ſtill more ſo, that the communication of ſo important a fact ſhould have been ſuffered to fall into oblivion, without leading to any general practical conſequence. The letters of the Rev. Herman Drew, as given below, contain in pretty unequivocal terms, an implied claim to the merit of diſcovery in himſelf; yet we have been informed, on authority which there ſeems no reaſon to queſtion, that his whole knowledge of the ſubject was derived from Mr. Bragge, who employed him merely as a medium of communication with Sir George Baker. If this be really the caſe, we cannot but conſider Mr. B. as unfairly treated in the matter. Nothing of this, however, applies to Dr. Jenner, whoſe merit, in regard to the introduction

Extract of a letter from the Rev. Herman Drew to Sir William Elford, Bart. dated Abbots, near Honiton, April 10th, 1802.

" Dr. Edward Jenner has undoubtedly very great merit in bringing the vaccine inoculation into practice, but he is no more the diſcoverer of the cow pox and its effects than I am. Nearly twenty years ago I wrote ſheets of paper to Sir George Baker on this diſorder, and I know not what occaſioned his laying aſide his intention of publiſhing his inveſtigations; he had had a previous correſpondence with Dr. Pulteney, of Blandford, on the ſubject. Sir George deſired me to inoculate with matter taken from the cow, but my endeavours to find out where I might get matter, were, for a long time, unſucceſsful, owing to the ſecrecy of the farmers, whoſe dairies were infected with ſuch a filthy ulcerous diſtemper; it would have marred the ſale of their butter, &c.

" About fourteen years ago, I diſcovered an infected cow, and, by deſire of Sir George Baker, I applied to a Mr. Bragge, a ſurgeon, of Axminſter, to attempt inoculation, but unfortunately we were too late, as the diſorder was ſo far abated in the animal, that the matter had loſt its activity. We made uſe, however, of a diſſolution of the ſcabs in warm water, but without ſucceſs.

" When Dr. Jenner publiſhed his obſervations, he was followed by Dr. Pearſon, of Leiceſter-ſquare, who was introduced by Sir George to a correſpondence with me on this ſubject, and he repeatedly confeſſes in print his obligations to me for information. No one can have an higher opinion of the good effects of the vaccine inoculation than I have; it has occupied my thoughts for years, and nothing but Horace's advice, '*ne ſutor ultra crepidam,*' has checked me from the uſe of the infected lancet, or ſaturated cotton. *Entre nous,* I have had a little ſucceſsful practice."

A letter, alſo, from William Tucker, Eſq. of Coryton, in Devonſhire, to Sir William Elford, Bart. dated Coryton, April 12th, 1802,

duction of the vaccine inoculation into general uſe, is unqueſtionable. Though, from the evidence here adduced, it appears that the general fact of the anti-variolous power of the vaccine was aſcertained, and ſome experiments even made on the ſubject, yet, from want of opportunity in ſome of the parties, and of zeal in others, it was ſuffered to ſink into total oblivion, or was loſt to all uſeful purpoſes. Nor is there any thing to ſhew that Dr. Jenner was acquainted with what had been previouſly done by others in regard to it. E.

ſtates,

ſtates, " that Mr. Bragge, twenty years ago, proved the efficacy, and with great aſſiduity recommended the practice, of vaccine inoculation; that Mr. Bragge, through the Rev. Herman Drew, furniſhed Sir George Baker with a variety of papers in proof of its being a ſure guard againſt variolous infection; and that Dr. Jenner's ſuperior merit conſiſted in having effected the introduction of vaccine inoculation, and in having alſo, as it is ſaid, aſcertained the means of diſcriminating the real from the ſpurious diſeaſe."

" No. 57.

Extract of a letter from Dr. Martin Wall to the Chairman, dated Oxford, April 14, 1802.

" Dr. Rowley certainly did not recollect correctly the converſation I had with him, when he was here, in the ſummer of 1801. The account of different caſes which he has confounded in one ſtatement, I think it will not be difficult to ſeparate and diſtinguiſh.

" Early in the ſpring 1801, or ſome little time before (I will not pretend to be very correct in my dates) Dr. Williams and Mr. George Jenner inoculated with vaccine matter three children of——Green, in George-lane. They were all ſuppoſed to have gone through the vaccine diſorder favourably. In the ſummer of the ſame year one of theſe three children caught the ſmall pox, which prevailed epidemically in the neighbourhood, and had the diſorder very mild. While the eruption was out upon the child, or juſt dying away, Dr. Jenner happened to call upon me, and I took him to ſee the child. As ſoon as he came into the room he immediately recollected he had been there before, and upon ſeeing the child, he ſaid to the mother, " Don't you remember " my being in this room, ſoon after theſe children were ſuppoſed to " have had the cow pox; and that, upon looking on this child's arm, " I told you, it had not had the cow pock, and would not be ſecure " from the ſmall pox unleſs it were ſubjected to another inoculation " with the vaccine matter; at the ſame time I told you, upon in- " ſpecting the arms of the other children, that they were ſafe?" This was the purport of his words. Whether I have given his exact expreſſions, I am not certain.

" Nearly at the time when the children above were inoculated by Dr. Williams and Mr. G. Jenner, Mr. Groſvenor and Mr. Swift inoculated, with vaccine matter, two children of —— Slater, Butler to Sir Digby Mackworth. They were ſuppoſed to have gone through the vaccine diſorder regularly and well; but both theſe children,

dren, in the July following, caught the natural ſmall pox, and one of them died. Of theſe caſes I know nothing more, as I did not attend the children."

[Having taken the report of the Committee into conſideration, the Houſe voted Dr. Jenner a reward of ten thouſand pounds.]

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§ 2. *Inconſiſtency of Character of the great* Linnæus.

Man is a ſtrange animal; a compound of all that is great and good, blended frequently with the height of weakneſs and vanity. Nor are the greateſt characters exempt from ſuch inconſiſtency. The illuſtrious Linnæus affords a ſtriking inſtance of this, as the following anecdotes, related in a late book of travels to the North of Europe, will evince*.

'I ſaw at the houſe of the preſident (of Waſa) a very intelligent and converſible clergyman. We had much converſation concerning the Finlanders, eſpecially on the ſubject of their poetry, and he mentioned a variety of intereſting particulars. Speaking of Linnæus, with whom he had been well acquainted at Upſala, he had much to ſay on the character of the Swediſh naturaliſt, and dwelt particularly on the extreme vanity which that great man ſeems to have carried to the moſt diſguſting length. He related to me ſome anecdotes, which gave ſtrong indications of that weakneſs. A lady of the province of Upſala, who had never been beyond its boundaries, applied to a friend of Linnæus for a letter of recommendation, that ſhe might have an opportunity of making the acquaintance of this eminent character, and at the ſame time ſee his collection. The philoſopher received her with much politeneſs; and as he was ſhewing her the Muſeum, the good lady was ſo filled with aſtoniſhment at the ſight of the aſſemblage of ſuch a number of different objects, upon each of which Linnæus had always ſomething to remark, that ſhe exclaimed with a ſigh, *I no longer wonder that Linnæus is ſo well known over the whole province of Upſala!* Linnæus, who, inſtead of *the province of Upſala*, expected to hear *the whole univerſe*, was ſo ſhocked, that he would ſhew her nothing more of the Muſeum, and ſent the lady away quite confounded at the change of his humour, and at the ſame time firmly believing that her high encomium had wounded the feelings of the great philoſopher.

* Acerbi's Travels through Lapland, &c. to the North Cape.

'One

'One day, being in a melancholy temper, he gave orders that no perſon ſhould be admitted to him, and placed himſelf, in his bed-gown and night-cap, ſad and penſive upon his ſofa. An officer in the Swediſh ſervice arrived with a party of ladies, who had made a journey for the expreſs purpoſe of ſeeing the Linnæan collection. The officer was denied admittance; but, being aware of Linnæus's caprice, he would not be refuſed by the ſervant, but puſhed by him, and entered the chamber where Linnæus was ſitting. At firſt, ſome indignation was ſhewn at this intruſion; but the officer introduced the ladies with a moſt extravagant panegyric to *the illuſtrious philoſopher, who was the ſole object of their journey; to the man whom the whole world allowed to be the greateſt; to that man who had put Nature herſelf to the rack, in order to diſcover her deareſt ſecrets, &c.* Linnæus's ſurly humour inſtantly forſook him, and he never appeared more amiable in his manners than to this officer, whom he embraced tenderly, calling him his true friend, &c. &c. He was ſo ſingularly enamoured of praiſe, that his mind was never in that ſedate ſtate, which would have enabled him to diſtinguiſh true commendation from flattery and deception. The clergyman, who at firſt could not credit ſuch reports, was convinced of their reality by one of his friends, who compoſed ſo ridiculous an eulogy for Linnæus, that the weakeſt child might have treated it as a farce or ſatire: it was worded in the bombaſt of the middle ages, or in the Aſiatic ſtyle: he called him the ſun of botaniſts, the jupiter of the literati, the ſecretary of Nature, an ocean of ſcience, a moving mountain of erudition, and other appellations to the ſame effect. Linnæus, far from feeling diſpleaſure at ſuch exceſſive and ridiculous compliments, interrupted the panegyriſt at each phraſe, embracing him, and calling him his deareſt friend.'

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§ 3. *Of Animal Magnetiſm.* From the ſame.

This, which the French philoſophers, and thoſe of our own country, almoſt without exception, conſider as a creature of the imagination, the child of credulity and impoſture, has, it ſeems, ſtill its advocates in the northern parts of Europe. Mr. Acerbi, in his travels through Finland, mentions ſome extraordinary effects produced in this way, which are calculated to induce a belief that animal magnetiſm, as it is called, has really ſome foundation, though the nature of it be ſtill unknown. We ſhould hardly have thought it worth while to intro-

duce the ſubject here, had not the reporter evidently been an acute obſerver, and himſelf given to ſcepticiſm in regard to it.

'The baron Silfverkielm, of Uleaborg,' Mr. Acerbi remarks, 'was a very amiable man, who had paſſed a great part of his life near the perſon of king Guſtavus, had travelled, and ſeen much of the world. He was an excellent mechanic; amuſed himſelf with chemiſtry; poſſeſſed an admirable Engliſh electrical machine, made experiments, and was fond of reading and the ſtudy of the belles-lettres. He was a man of no ceremony, and (which will not be believed by every one) a moſt famous magnetizer, and one of the greateſt proficients among the diſciples of Meſmer. I have ſeen the baron give proofs of his ſkill in animal magnetiſm, which, I confeſs, ſhook my incredulity a little, both in reſpect to the efficacy of his principles, and the exiſtence of the magnetic fluid, or whatever elſe it may be called, which is ſuppoſed to operate upon individuals. The effects it produces cannot eaſily be attributed to ordinary cauſes, nor ſupported by reaſons derived from the known laws of Nature. Although he was unable to affect me with his magnetical powers, yet he wrought upon perſons whoſe probity and good faith I am not at liberty in any degree to queſtion. He repeated to me experiments he had made in different places, on different individuals, and in different circumſtances; and I find myſelf ſatisfied as to the exiſtence of ſome natural cauſe or principle, which has hitherto remained unknown: it is wrapt up in obſcurity, and is as yet inexplicable to the underſtanding. I am very far from attempting, after the baron's example, to account for it; though I think that a ſolution of this problem may be reſerved for a period of higher improvement in the knowledge of Nature, the ſtudy of which has been ſo ſucceſsfully purſued, and ſo rapidly advanced in the courſe of the preſent century. I ſaw my fellow traveller, as incredulous as myſelf, fall into a profound ſleep by the mere motion of the magnetizer's fingers; I heard him ſpeak in his ſleep, and reply to whatever queſtions I propoſed to him; I ſaw him again awake by the ſimple motion of the magnetizer's fingers, while I was unable to rouſe him from his ſomnolency, though I brought fire cloſe to his hand, an experiment to which he was as inſenſible as a dead body. He awoke, after ſleeping from five to ſix hours, remembering nothing of what he had ſaid, denying obſtinately that he had been aſleep, and yielding with difficulty at laſt to the authority of his watch, and the teſtimony of all thoſe who had witneſſed the circumſtance. I might mention

mention a number of facts relative to this ſubject, by which I ſhould be able to prove, that in theſe trials there could be neither connivance, nor impoſture, nor previous arrangement: but this doctrine ſtill lies too much under ſuſpicion for me to dwell any longer upon it. I ſhall only add, that two Engliſh travellers, better informed, and if poſſible, greater infidels than myſelf reſpecting Meſmeriſm, happening to paſs by Uleaborg at the ſame time, ſtopped a day, that they might obſerve ſome of the magnetical performances. From previous concert, one of them was to aſſume the appearance of being affected; but at the moment when the magnetizer ſhould ſeem confident that his art had taken effect, he who was to feign himſelf aſleep, at a ſign given him by the other, was to awake in ſurprize, and thus diſappoint the credulity of the operator and his audience. The experiments accordingly began: one of them was unſuſceptible of the magnetic impreſſion, the other was actually affected, and his companion might make what ſigns he pleaſed; he was deaf, incapable of underſtanding any thing, and in ſuch a languid and lethargic ſtate, that every act of volition was entirely ſuſpended. The two gentlemen will probably give ſome account of their travels, and poſſibly confirm the truth of my relation of theſe almoſt incredible experiments.'

'From the manner in which I have ſtated my remarks,' Mr Acerbi obſerves, 'the reader will be able to judge of the light in which I viewed this ſubject. Having ſucceeded in our reſearches concerning the electrical fluid, and what is called *galvaniſm*, I think it not impoſſible but we may diſcover ſome other fluid, or material ſubſtance, which ſhall have its particular laws, relations, and affinities. I am of opinion, that in animal magnetiſm, we meet with appearances which cannot be traced to the imagination as their cauſe, nor indeed to any cauſe known or ſtated by the enemies of this doctrine. The French academicians themſelves, in their report on animal magnetiſm, ſhew, perhaps, that they beſtowed upon it neither the time, nor the candour and impartiality, which a ſubject ſo difficult, and ſo much entangled in the groſſeſt prejudices, had a right to obtain from them. Upon the whole, I conclude that we are ſtill entirely in the dark as to this unknown cauſe, which, though we cannot yet aſſign to it any name or determinate qualification, is not on that account leſs poſſible.'

☞ Gentlemen wiſhing to have the lectures of the enſuing winter announced, are requeſted to tranſmit an account of them to Mr. BOOSEY, early in the month of Auguſt, for inſertion in the next number.

No. L.

THE MEDICAL AND CHIRURGICAL Review.

SEPTEMBER, 1802.

ART. X. *Philoſophical Tranſactions of the Royal Society of London for the Year* 1802. Part I. 4to, 212 pages. London. 1802. NICOL.

Art. 1. 'THE *Croonian Lecture. On the Power of the Eye to adjuſt itſelf to different Diſtances, when deprived of the cryſtalline Lens. By* Everard Home, *Eſq., F.R.S.*'—Different cauſes have been aſſigned by different philoſophers for that faculty which the eye is known to poſſeſs, of adapting itſelf to ſee objects diſtinctly at various diſtances. Some have attributed it to a change of figure taking place in the cryſtalline itſelf, the conſequence of a contractile power from its ſuppoſed muſcular or fibrous ſtructure; others, to a change of figure induced on the cornea, which was ſuppoſed to be elaſtic; and others, to a change in the general form of the globe of the eye, the effect of the combined action of its muſcles. Theſe different opinions our Readers will find detailed in different parts of our Review.* In the preſent paper Mr. Home's intention is, to ſtate ſome facts and obſervations in ſupport of an opinion advanced in a former Lecture, that the adjuſtment of

* Med. & Chir. Rev. v. 2, p. 326, & v. 8, p. 193.

the eye to ſee objects at different diſtances does not depend upon any internal changes in the cryſtalline lens itſelf, ſince, as it appears, this faculty has been found to exiſt in eyes from which the cryſtalline has been removed by an operation.

'In the year 1794,' the author obſerves, 'I laid before this learned Society ſome experiments, ſuggeſted and made by Mr. Ramſden, upon the comparative powers of adjuſtment of the eye, when in a perfect ſtate, and when deprived of the cryſtalline lens. From the reſult of theſe experiments it appeared that the removal of the lens did not deprive the eye of the power of ſeeing diſtinctly at different diſtances. As the perſon upon whom the experiments were tried did not ſee very diſtinctly, without a ſubſtitute for the lens, in making them, a double convex glaſs, of $2\frac{1}{4}$ inches focus, was placed before his eye; and, to render the image diſtinct, by correcting the ſpherical aberrations, the aperture was diminiſhed to $\frac{3}{20}$ths of an inch; a leſs degree of diminution not anſwering that purpoſe.

'The ſubject of theſe experiments was Benjamin Clerk, twenty-one years of age: one of his eyes was in a very perfect ſtate, and the other without defect, except what aroſe from the removal of the lens: and the reſults appeared to be ſatisfactory in deciding, that the eye, when deprived of the cryſtalline lens, retains a power of adjuſtment.

'Opportunities of inſtituting experiments of this kind very rarely occur; the patients who have had their lenſes extracted either not ſeeing ſufficiently well, or being too much advanced in life to be fit ſubjects for that purpoſe; but, in the year 1798, the following caſe came under my [illegible], which enabled me to make ſome further obſervations in confirmation of the former experiments.

'Henry Miles, a carpenter, at Weſtborough Green in Suſſex, fifty years of age, applied in the month of Auguſt,

Auguſt, 1798, at St. George's Hoſpital, to be admitted as a patient, on account of blindneſs, from having a cataract in each eye; and was received under my care. Both the cataracts were extracted; and the eyes recovered from the effects of the operation, without ſuffering from inflammation. The right eye had the power of ſeeing objects with unuſual diſtinctneſs; but the left was leſs perfect, the iris having been ſlightly torn by the lens being too big to paſs through the aperture without injuring the membrane.

'As ſoon as this man's eyes had recovered, I requeſted Mr. Ramſden to repeat ſome of the former experiments on his right eye, which he readily agreed to do. Before the experiments were made, upon trying what was his power of viſion with the naked eye, we were agreeably ſurpriſed to find that he ſaw ſo diſtinctly, as to admit of our aſcertaining, without the aid of glaſſes, what were the ranges of his eye's adjuſtment.

'A piece of paſteboard, with a letter of a moderate ſize, as an object upon it, was put into his hands; as he could not read, the page of a book might have confuſed him: he was directed to vary the diſtance of the paſteboard from his eye, till he had aſcertained the neareſt and moſt diſtant ſituations in which the object appeared diſtinct: theſe diſtances, by meaſurement, were 7 inches, and 18 inches. In repeating this experiment ſeveral different times, he brought the object very correctly to the ſame ſituations.

'This reſult convinced Mr. Ramſden that the eye poſſeſſed the power of varying its adjuſtment, and he did not think any more complex experiments would be nearly ſo ſatisfactory; conſequently no others were made, and the man was allowed to go into the country.

'It was intended to make him a preſent of a pair of ſpectacles, allowing him to chooſe thoſe beſt adapt-

ed to his eye; but his ſight was ſo very good, that we entirely forgot it, till ſome time after he was gone.

'These experiments confirmed the former ones ſo very ſtrongly, and from their ſimplicity were ſo much leſs liable to error, that Mr. Ramſden and myſelf conſidered the object of our inquiry completely attained: the reaſon for not, at the time, laying them before this learned Society was, that they eſtabliſhed no new fact, and the former ones did not appear to require their ſupport.

'This inquiry, always regarded as highly important by phyſiologiſts, has continued to engage their attention; and, in the Bakerian Lecture for laſt year, Dr. Young has advanced ſome experiments to prove, that the adjuſtment of the eye to different diſtances depends upon the cryſtalline lens: he conſiders the reſults of the experiments made by Mr. Ramſden upon Benjamin Clerk's eyes as inconcluſive; and the phenomena met with as ariſing from the ſmallneſs of the aperture, and not from any power of adjuſtment in the eye. Dr. Young, therefore, with a view to obviate all poſſibility of deception in future, conſtructed an optometer upon the principle of that of Dr. Porterfield. In this inſtrument, when applied to preſbyopic eyes, the eye, by looking along a line through a ſmall convex lens, before which is placed a card with two narrow ſlits in it, near enough to each other to be within the limits of the pupil, will ſee the line as two lines, croſſing each other at the point of perfect viſion; and every eye that has the power of adjuſtment will make the lines croſs in different places, when adjuſted to different diſtances.

'With this inſtrument Dr. Young made experiments upon ſeveral eyes which had been deprived of the cryſtalline lens; and with all of them found that the croſſing of the lines was ſeen only at one point; he therefore concludes that the power of adjuſtment was loſt.

'These

'Theſe experiments of Dr. Young led me to reconſider the ſubject; and it was matter of regret that Benjamin Clerk was not in this country; as making a trial with the optometer on his eye would have determined, in the moſt ſatisfactory manner, whether there had been a fallacy in the former experiments.

'This not being in my power, I made inquiry after Henry Miles, upon whom the ſecond experiments were tried; and I had the pleaſure to hear that he was in good health, and that his eyes continued to have very diſtinct viſion, ſo much ſo, that he never had occaſion to make uſe of any glaſſes from the time the operation had been performed.

'With the view of making ſome experiments on this man's eyes with Dr. Young's optometer, I procured that inſtrument from Mr. Cary, the optician, made exactly in the ſame manner as that which had been executed under Dr. Young's direction. I firſt, however, tried the experiments upon my own eye; but had the mortification to find myſelf unable to make the lines croſs in two different ſituations. This led me to try the eyes of ſeveral of my friends, who were equally unable to make the lines croſs any where, except at one point. Young people, indeed all thoſe under thirty years of age, were capable of varying the place of interſection; but none who were above forty could produce any change in it.

'As I could not doubt of my own eye having the power of varying its adjuſtment, I was led to believe that the inſtrument required ſome addreſs in the management, which I had not acquired; and therefore deſpaired of making Henry Miles ſufficiently maſter of it to do juſtice to my views.

'To obviate theſe difficulties, I adapted the optometer, without the lens, to preſbyopic eyes, by making a line four feet long, upon ſtrong paper, divided into inches, and having the ſame ſlits to look through as in the other. This inſtrument, and Dr. Young's, I put

into the hands of my friend, Sir Henry Englefield, with a requeſt that he would examine them, and, when he had become perfectly maſter of them, and of the beſt mode of uſing them, that he would aſſiſt me in making experiments with them; for, as he was more in the habit of changing the focus of his eye in uſing optical inſtruments, he would more readily detect the circumſtance which prevented me from ſucceeding in the experiment.

'After ſeveral trials with this optometer, and ſeeing its defects, Sir Henry Englefield improved it, by having the paper paſted upon a ſtrong board, four feet long, which rendered the ſurface free from the ſlighteſt inequalities; and, inſtead of a line marked with ink, a thread of black ſilk was ſtretched along the middle of the board. With this inſtrument he found that his eye could make the lines croſs at two different points, at ſeveral inches diſtance from each other. The readieſt mode of making the experiment ſucceed was, firſt, fixing his eye upon ſome near object held above and a little on one ſide of the ſilk thread, and, when the focus of his eye was adapted to that diſtance, then to look at the thread; afterwards to look at ſome diſtant object, and, when that had become very diſtinct, again to look at the thread. Upon trying the inſtrument with my own eye in this way, I found the croſſing of the lines changed its ſituation with every change of adjuſtment; and, after being accuſtomed to make this experiment, I was enabled to produce a ſimilar change in the optometer with the lens, but by no means in ſo ſatisfactory a manner, nor did it laſt more than an inſtant; my eye probably not being ſo well fitted as many others for experiments of this kind.

'The optometer without the lens was hence admitted to be the moſt eaſily managed by the eye of a perſon unaccuſtomed to ſuch experiments, and therefore it was determined to make uſe of it in the trials upon Henry Miles's eye; which we were enabled to do,

do, as his viſion was ſufficiently diſtinct without the aid of glaſſes, and as, from never having uſed them, he ſaw much better with his naked eye.

'The following experiments were made with the optometer without the lens, on the 27th of Auguſt, 1801.

'The firſt trials were upon Sir Henry Englefield's eye, which, being moſt familiar with the uſe of the inſtrument, became a ſtandard with which the others might be compared.

'Sir Henry Englefield's eye made the lines to interſect each other at $12\frac{1}{4}$ inches, as the near diſtance; and at $28\frac{1}{2}$ inches, as the fartheſt diſtance. The experiment was repeated ſeveral different times, and the reſults were very nearly the ſame.

'My own eye made the lines interſect at $12\frac{1}{2}$ inches, as the near diſtance; and at $29\frac{1}{2}$ inches, as the fartheſt diſtance.

'A man-ſervant of Sir Henry Englefield's, twenty-five years of age, made the lines interſect at 12 inches, and at $31\frac{1}{2}$ inches.

'Henry Miles, fifty years of age, whoſe eye had been deprived of the cryſtalline lens for three years, made the lines interſect at $8\frac{3}{10}$ inches, as the near diſtance; and at $13\frac{3}{10}$, as the fartheſt diſtance.

'This experiment was repeated two different times in the forenoon with the ſame reſult, and again in the afternoon, without there being any conſiderable variation; but, upon trying it again, after the eye had been fatigued, he was unable to make the lines croſs nearer than $11\frac{2}{8}$ inches, although he could make them croſs at $13\frac{3}{10}$ inches; ſo that adjuſting the eye to a near diſtance was more difficult after it had been much uſed than before.

'Henry Miles was unable, in the optometer with the lens, to produce any change in the croſſing of the lines; nor did he ſee them croſs with ſufficient diſtinctneſs to make us conſider it a fair experiment.

'The following experiment was made upon Miles's eye, at the ſuggeſtion of Sir Henry Englefield, with a view to aſcertain in another, though leſs deciſive, way whether any change took place in it, when directed from a near object to a more diſtant one.

'A piece of paſteboard, in which a black circle, about $\frac{1}{4}$ of an inch in diameter, with a dot in the centre, had been deſcribed near to its edge, was placed perpendicularly to the horizon, at five inches diſtance from the eye; another piece of paſteboard, with a circle and dot in it, was placed at the diſtance of eighteen inches; the fartheſt circle was made a little larger than the other, that it might appear equally diſtinct at the greater diſtance. When the eye was directed towards theſe two objects, they appeared upon the ſame level; and the circumference of the circles, had they been projected on the ſame perpendicular plane, would have been nearly in contact.

'Miles was placed oppoſite theſe objects, with his head made ſteady, and prevented from moving: he was then told to look at one till it became very diſtinct; and, when he had done ſo, this was removed, and he was directed to look at the other, which did not immediately appear to him with the ſame diſtinctneſs. This was equally the caſe, whether he looked from the near one to the diſtant one, or the reverſe: the eye did not ſee the object to which it was ſo ſuddenly directed with the ſame defined outline as that from which it had been withdrawn.

'This man ſees beſt in a ſtrong light; and it was in that light all the experiments were made: he can ſee very well in any degree of daylight; but his eyes are much fatigued by candlelight. Upon examining the eye attentively, the pupil was rather larger than in perfect eyes; the iris was in a very perfect ſtate; and the cicatrix of the wound, in the inferior part of the cornea, was ſcarcely viſible.

'The

'The ſight being ſo good, without the aid of glaſſes, is not common; and, had not the lenſes been extracted in a public hoſpital, before a number of ſpectators, ſome doubts might be entertained whether they had been removed.

'From the experiments which have been ſtated, it appeared to Sir Henry Englefield that Miles's eye was not deprived of its power of adjuſtment; and, by whatever circumſtances my own judgment might be deceived, or rendered partial, there was nothing by which his could be biaſſed, as he could have no object in view but the promotion of ſcience. His knowledge of optics, and his habit of making experiments, are the beſt pledges of theſe having been as accurately performed as the nature of the ſubject admits of; for, certainly, the ſources of fallacy in optical experiments are numerous. Thoſe that have been related, to be made with perfect accuracy, ſhould be tried upon the eye of a perſon ſkilled in optics, and accuſtomed to ſuch experiments; and whoſe eye had been deprived of the cryſtalline lens, without having received the ſlighteſt degree of injury in any of its other parts.

'The experiments were inſtituted in the Iſle of Wight, which prevented me from requeſting ſeveral of my friends to be preſent at them, whoſe knowledge of the ſubject would have made me deſirous of their aſſiſtance.

'Haller mentions the caſe of a nobleman, from whoſe eye the cryſtalline lens had been extracted, who uſed glaſſes, and could ſee with them objects at different diſtances. As this was an obſervation made upon a particular friend of his own, and as he refers to Pemberton, who mentions a caſe of depreſſed cryſtalline lens in which no ſuch effect took place, it is natural to ſuppoſe that he had given conſiderable attention to the ſubject; and that, although the experiments he inſtituted are not mentioned, the opinion was not advanced

vanced without what appeared to him ſufficient authority.*'

2. '*The Bakerian Lecture. On the Theory of Light and Colours. By* Thomas Young, *M D., F.R.S., Profeſſor of Natural Philoſophy in the Royal Inſtitution.*'—The hypotheſis here attempted to be ſupported by the ingenious author, and which he ſhews to be very ſimilar to that entertained by Sir Iſaac Newton, is thus ſtated.

'1. A luminiferous ether pervades the univerſe, rare and elaſtic in a high degree.'

'2. Undulations are excited in this ether whenever a body becomes luminous.'

'3. The ſenſation of different colours depends on the different frequency of vibrations, excited by light in the retina.'

'4. All material bodies have an attraction for the etherial medium, by means of which it is accumulated within their ſubſtance, and for a ſmall diſtance around them, in a ſtate of greater denſity, but not of greater elaſticity.'

On theſe principles the author endeavours to explain the various phenomena, not only of light, but of heat, which, he conſiders it probable, differs from light only in the frequency of its undulations or vibrations: thoſe undulations which are within certain limits, with reſpect to frequency, being capable of affecting the optic nerve, and conſtituting light; and thoſe which are ſlower, and probably ſtronger, conſtituting heat only. He imagines, that light and heat

'* Et lente ob cataractam extractam vel depoſitam, oculum tamen ad varias diſtantias videre, ut coram in nobili viro video, abſque ullo experimento, quo eam facultatem recuperaverit. Et ſi enim tunc, ob diminutas vires, quæ radios uniunt, æger lente vitrea opus habet, eadem lens in omnia diſtantia ſufficit.'---*Haller Elementa Phyſiologiæ*, tom. V., lib. xvi., ſect. 25, p. 514.

occur

occur to us each in two predicaments,—the vibratory or permanent, and the undulatory or tranſient ſtate; vibratory light being the minute portion of ignited bodies, or of ſolar phoſphori; and undulatory or radiant light the motion of the ethereal medium excited by theſe vibrations: vibratory heat being a motion to which all material ſubſtances are liable, and which is more or leſs permanent; and undulatory heat that motion of the ſame ethereal medium, which has been ſhewn by Mr. King (Morſels of Criticiſm, 1786, p. 99), and M. Pictet (Eſſais de Phyſique, 1790), to be as capable of reflection as light, and by Dr. Herſchell to be capable of ſeparate refraction. (*Phil. Tranſ. for* 1800, p. 284.)

How far the theory here advanced be more explanatory of the phenomena than the corpuſcular theory, it may be difficult to determine. The opinion that heat conſiſts in vibrations of the particles of bodies, capable of being tranſmitted by undulations through an apparent vacuum, is an old one, but has been pretty generally abandoned. Of late, however, it has been ſupported by a few diſtinguiſhed philoſophers, eſpecially Count Rumford, M. Pictet, and Mr. Davy; and Dr. Young thinks it probable it will very ſoon recover its popularity.

'3. *An Analyſis of a mineral Subſtance from North America, containing a Metal hitherto unknown. By* Charles Hatchett, Eſq., *F.R.S.*'—The ore, the analyſis of which is here deſcribed, appears to conſiſt of iron combined with an unknown ſubſtance, the latter conſtituting more than three-fourths of the whole. This ſubſtance is proved to be of a metallic nature, by the coloured precipitates which it forms with pruſſiate of potaſh, and with tincture of galls; by the effects which zinc produces when immerſed in the acid ſolutions; and by the colour which it communicates to phoſphate of ammonia, or rather to concrete

crete phoſphoric acid, when melted with it. It appears, alſo, from experiments with the blow pipe, to be very difficult of reduction.

It is an acidifiable metal; for the oxide reddens litmus paper, expels carbonic acid, and forms combinations with the fixed alkalies. It differs, however, in many reſpects, from the other acidifiable metals, arſenic, tungſten, molybdena, and chromium, as well as from the newly-diſcovered metals, as the uranium, titanium, and tellurium.—From the country whence it is procured, Mr. H. gives it the name of *Columbium*.

'4. *A Deſcription of the Anatomy of the Ornithorhynchus Paradoxus. By* Everard Home, *Eſq., F.R.S.*'—The animal here deſcribed is amphibious, and found in the freſh water lakes of New South Wales. In its general appearance it bears ſome reſemblance to the beaver; is about eighteen inches in length, and has a ſort of bill attached to the front of its mouth about two inches long. Its ſkin is covered by a fine fur, intermixed with hair.

Externally there is no appearance of the organs of generation in either ſex; the orifice of the anus being a common opening to the rectum and prepuce in the male, and to the rectum and vagina in the female. There is no appearance that could be detected of nipples.

The organs of generation in this animal have ſeveral peculiarities, which are here deſcribed, and which aſſimilate it with what have been called ovi-viviparous animals; as ſome lizards which form an egg that is afterwards depoſited in a cavity correſponding to the uterus in other animals where it is hatched. The ſame is the caſe in the dog-fiſh; and there is every reaſon to believe, Mr. Home obſerves, that this animal alſo is ovi-viviparous in its mode of generation.

'5. *On*

'5. *On the Independence of the analytical and geometrical Methods of Investigation; and on the Advantages to be derived from their Separation.* By Robert Woodhouse, *A.M.*, &c.'

(To be continued.)

Art. XI. Dr. Fordyce's *Fourth Dissertation on Fever*, &c.

(Continued from page 30.)

OUR last extract terminated with the history and treatment of the irregular semitertian, or malignant endemic of tropical climates, as far as they were known to the author. He next proceeds to describe those varieties of the same disease which have a nearer resemblance to regular remittent and intermittent fevers than to continued. This is the form of disease that prevailed in the camp of Alexander of Macedon, who was himself affected by it. The account we have of it is furnished by *Arrian*, and was collected from the notes or bulletins sent to inform the Grecian and Persian nobility of the progress of the disease in the royal patient, and which he caught by surveying the marshes on the banks of the Euphrates, in order to form a plan for draining them. The only peculiarity in this form of the disease, deserving notice, is the necessity for employing the peruvian bark very early in the remissions, and in as considerable quantities as the stomach will bear.

The author now returns to irregularities which take place in intermittents, such as happen in temperate climates.

The first he notices is cough and difficulty of breathing, arising from the quantity of blood thrown upon

upon the lungs in the attack of the diſeaſe. This affection of the lungs is ſomewhat ſimilar to peripneumony, but more frequently to catarrh, or rather a mixture of the two. This is often, at firſt, attended with marks of general inflammation, but ſoon aſſumes the form of hectic, and has often been miſtaken for phthiſis, the proper attacks of the intermittent becoming obſcure. In this caſe the author thinks it beſt, on the whole, to adminiſter the bark, though with any practice the diſeaſe will ſometimes prove fatal.

The next irregularity noticed is tumours in the abdomen, generally of the liver or ſpleen, and which are vulgarly denominated ague-cakes. Theſe do not ſeem, the author obſerves, to alter much the progreſs of the diſeaſe, nor do they ſeem to prevent its being carried off, either by the ordinary progreſs of the fever itſelf, or by the exhibition of other remedies.

Theſe tumours, by preſſing on the branches of the vena portarum, which paſſes into the liver, and branches in the manner of an artery, prevent the blood from returning from the abdominal viſcera with the ſame facility that it does commonly. The paſſage of the blood being thus retarded, occaſions a greater extravaſation of lymph into the cavity of the abdomen, ſo that the ordinary exertion of the abſorbents is not ſufficient to take up the whole lymph. Thus an aſcites takes place.

Theſe tumours alſo not uncommonly preſs on the ductus communis choledochus, the duct of the gall bladder, the hepatic duct, or the ducts which have been commonly called pori biliarii, which the author would rather call hepatic ducts. The preſſure of theſe ſcirrhous-like tumours upon any of theſe ducts may prevent the whole or part of the bile from getting into the duodenum, occaſion it to be abſorbed, and produce jaundice of itſelf, without any concomitant dropſical ſymptom, or along with it aſcites. When this happens, the diſeaſe is generally fatal.

When

When aſcites is occaſioned by ſuch ſcirrhous-like tumours produced in the liver in intermitting fevers, the ſkin often aſſumes a dirty yellowiſh brown colour. This colour the author rather attributes to the colouring part of the rete mucoſum, or the ſebaceous matter ſecreted by the glands of the ſkin, than to bile abſorbed, or its not flowing into the duodenum. There is no appearance which ſhews that bile does not get into the inteſtines, ſuch as want of colour in the fæces, &c.; or of its having got into the blood veſſels, ſuch as the urine's becoming a yellow dye, &c. The author has already ſhewn that no bile is ever contained in the blood veſſels, unleſs it has been previouſly formed in the liver, and abſorbed.

The ſame determination of blood from the blood veſſels upon the abdominal viſcera, when the patient becomes weak after an intermittent has continued for two or three months, or longer, ſometimes occaſions an increaſed ſecretion from the glands of the inteſtines. Diarrhœa is thus produced. This diarrhœa, like that which has already been deſcribed as taking place in intermittents in hot climates, is more ſevere during the remiſſions and intermiſſions; and leſs ſevere, or ceaſes altogether, at the time of the acceſſion, and during the time of the paroxyſm. Such diarrhœa tends to increaſe the weakneſs conſiderably. Frequently this weakneſs occaſions dropſical appearances. At firſt, œdematous ſwellings appear in the lower extremities: theſe increaſe, riſing up to the thighs, and then to the integuments of the abdomen. Aſcites alſo takes place. This is an accident very dangerous, and difficult to get the better of. If aſtringent remedies be employed, ſo as to put a ſtop to the diarrhœa, the dropſical appearances increaſe, and the intermittent continues to recur, although often very obſcurely, and very irregularly. If the diarrhœa be allowed to go on, or if it have been ſtopped, and be allowed to return by leaving off the aſtringents, the weakneſs increaſes

in

in ſuch a degree as to deſtroy the patient. If the bark of the cinchona be exhibited, it often increaſes the diarrhœa without having the effect of preventing the irregular returns of the attacks or exacerbations. It appears to the author to be beſt, in this caſe, firſt to clear the primæ viæ, by employing about twenty-five grains of rhubarb; after its operation is over, to exhibit cinchona in pretty conſiderable quantity, ſuch as a drachm every three hours, and to give at the ſame time a grain of ipecacuanha, with fifteen drops of tincture of opium (equal to half a grain of opium), together with a moderate quantity of any of the warmer ſpices every four hours. The author, however, is very far from ſaying that this practice is always efficacious in curing the diſeaſe, which, when it has been allowed to run on to this ſtate, is not uncommonly fatal.

Dropſy, likewiſe, the author obſerves, ſometimes ariſes from mere weakneſs, without any tumour of the abdominal viſcera. This increaſes during the intermiſſion, and diminiſhes during the paroxyſm, when it often totally ſubſides. The increaſed exertion of the lymphatics during the hot fit appears to occaſion a total abſorption of the lymph; the want of this exertion during the day in which no paroxyſm takes place, allows the lymph to be accumulated in the cavities.

When the bark of the cinchona, or any other remedies having ſimilar effects, are exhibited, and prevent a return of the exacerbation, then the exertions of the lymphatics during the hot fit, and the abſorption of the lymph do not take place, the lymph is not abſorbed, and the dropſical ſymptoms appear to be very much increaſed.

The dropſical ſymptoms appearing thus to increaſe, when the intermittent has been put a ſtop to by the cinchona, or other medicines having a ſimilar effect, has occaſioned an opinion that the cinchona gave occaſion to the dropſy, and the practice of exhibiting it

has

has been reprobated by many practitioners. It is to be obſerved, however, that ſuch dropſical ſymptoms have ariſen ſolely from the weakneſs occaſioned by the continuance of the diſeaſe. It is farther to be obſerved, that the increaſe of the dropſical ſymptoms, after the paroxyſms of the fever have been prevented from returning, is owing to the want of that alleviation of the dropſy which took place during the paroxyſm by the greater exertion of the abſorbents during the hot fit; at the ſame time that as well as the other exertions during the paroxyſm tend to weaken the patient, ſo as to become the very cauſe of the final increaſe of the dropſy. The putting a ſtop to the paroxyſm, therefore, although it prevents the temporary alleviation of the dropſical ſymptoms, yet at the ſame time it removes their original cauſe. It would appear, therefore, from this view, that it is proper, if poſſible, to put a ſtop to the farther progreſs of the diſeaſe, and ſo prevent the patient from being more and more weakened.

The author, accordingly, for many years, has not heſitated, when dropſy has ariſen in an intermittent which has continued long, and there has been no cauſe to ſuſpect induration in any of the viſcera occaſioning preſſure on the lymphatics or veins, to exhibit the bark of the cinchona, and endeavour by this means to prevent the return of the paroxyſm. He has found, in ſuch caſes, that the dropſical appearances, although they at firſt increaſed, yet, as the ſtrength returned, generally began by degrees to diminiſh, and at laſt diſappeared entirely, and the patient recovered his health.

It ſometimes happens, if intermittent fevers have been entirely neglected in the beginning, or when the bark has been employed improperly, that the diſeaſe runs out to a great length, whatever its type may be, and becomes irregular. In theſe caſes, preparations

of the metals, as arsenic, zinc, copper, and iron, may be had recourse to sometimes with effect. Of these, the author supposes the first to be the most powerful, though requiring the greatest caution in its use, and not to be entrusted in the hands of such young men as are too frequently employed to compound medicines in the shops of the apothecaries of this country.

This terminates the present Dissertation. The remaining one, we are happy to be informed, has been left by the author in readiness for the press, and will shortly make its appearance.

Art. XII. Bichat's *Physiological Researches on Life and Death.*

(Continued from page 57.)

WE are now to follow the author in the second part of his work, where he treats of *Death.* In the former part M. *Bichat* pointed out the two grand divisions of life; the striking differences which distinguish an animal, as living in relation to external objects, from an animal living, as it were, internally, for himself alone. He now inquires in what manner life is terminated accidentally, before the term fixed by Nature for its duration.

Art. 1. Such is the influence exerted on life by society, that it rarely attains the natural period. Accidental death, therefore, or death taking place in any other way than by the influence of old age, forms an important object of consideration.

Accidental death takes place in two different ways: sometimes it is the result of a sudden and violent shock in the œconomy: sometimes diseases induce it in a more

more slow and gradual manner. It is the former that is here more particularly considered.

The first remark which occurs to observation, in the divers species of sudden deaths, is, that in all, the *organic* life may, to a certain point, subsist, after the *animal* life is extinct; but that this, on the contrary, is in such a dependence on the former, that it never continues after its interruption. A person struck with apoplexy, &c., still lives, sometimes for many days, inwardly; though he ceases to exist in his external relations: death begins in this case in the *animal* life. If, however, the injury is primarily inflicted on some of the essential organic functions, as the circulation, by wounds, aneurismal rupture of the heart, &c.; or the respiration, in asphyxia, &c., then these functions cease almost suddenly, but the animal life also is destroyed at the same time; and even in this case a part of the organic life subsists, as has been seen, for a longer or shorter time, and terminates only by degrees. The cessation of the *organic* phenomena is always a certain index of general and perfect death; and we cannot pronounce with certainty on its reality, but on this foundation; the interruption of the external phenomena being a sign hardly ever to be relied on.

The difference in the manner in which the two species of life are accidentally terminated, depends on the mode of influence which they exert on each other; on the sort of connection which unites them. This connection appears to exist especially between the brain, on the one hand, for the *animal* life, and the lungs or heart, on the other, for the *organic*. The action of one of these three organs is essentially necessary to that of the other two. When one of them ceases entirely to act, the others are incapable of maintaining their activity; and as they are the three centers on which all the secondary phenomena of the two species of life turn, those phenomena are inevitably in-

terrupted at the same time, and universal death ensues.

Every species of sudden death commences in effect by the interruption of the circulation, of the respiration, or of the action of the brain. One of these functions ceases first; the others afterwards terminate successively. In order to explain with precision the phenomena of these kinds of death, it is necessary to consider them under those three essential views; and such is the author's aim in this part of his undertaking. He first considers the deaths which have their origin in an affection of the heart; afterwards those which originate in the lungs and the brain. He endeavours to shew, one of these three organs being affected, in what manner death takes place in the other two; then by what mechanism the death of all the parts is derived from that of the affected organ. Lastly, he determines, on the principles which have been laid down, the nature of the different kinds of disease which attack the heart, the lungs, or the brain.

2. *Of the influence which the death of the heart exerts on that of the brain.* The heart can act on the brain in two ways only; by the nerves, or by the blood-vessels; these being the only communications between those organs. It is by the latter, the author observes, that the effect in this case is produced. Instead of dividing the heart into a right and left ventricle, the author thinks it advisable to speak of it as of two hearts, the one carrying red blood, the other black (*coeur a sang rouge*, and *coeur a sang noir*).

The ventricle and auricle carrying red blood (the left), manifestly influence the brain by the fluid which the carotid and vertebral arteries conduct to it. This fluid may excite the brain in two ways; 1st. by the motion with which it is agitated; 2nd. by the nature of the principles which constitute it, and which distinguish it from black blood.

It

It is eaſy to prove, the author obſerves, that the movement of the blood, communicated to the brain, keeps up its action and its life. Thus, if we expoſe in part this organ in an animal, ſo as to obſerve its movements, and afterwards tie the carotids, it will be ſeen that ſometimes the motion of the brain becomes feeble, and the animal ſtupefied; at other times it continues its motions as before, the vertebral ſupplying perfectly the place of the tied carotids; and then no derangement of the principal functions takes place. There is always a relation between the vital energy and the elevation and depreſſion of the brain. If, on the other hand, the cranium be removed, and the courſe of the blood be intercepted in all the veſſels going to the head, the movement of the brain immediately ceaſes, and life is extinguiſhed.

But this motion of the blood is not the ſole mode of the influence which the heart exerts over the brain; it acts alſo by the nature of the blood itſelf. Were it otherwiſe, it would be poſſible to act on the brain, and revive its loſt functions, by injecting mere water through the carotids, with an impulſe analogous to that which is natural to the blood.

3. *Of the influence which the death of the heart exerts on that of the lungs.* The lungs are the ſeat of two different ſets of phenomena; the one mechanical, including the motion of the cheſt and air cells; the other chemical, relating to the changes which the air and the blood undergo by their action on each other. When death takes place in conſequence of injury to the right ſide of the heart or its veſſels, the chemical phenomena firſt ceaſe, and afterwards the mechanical. When, on the contrary, the left ventricle or its veſſels are firſt affected, the order of the phenomena is inverted; the mechanical action firſt ceaſing, and afterwards the chemical. As the circu-

lation is rapid, a very short interval exists between the interruption of one and the other.

4. *Of the influence which the death of the heart exerts on that of all the organs.* The annihilation of all the functions succeeds the interruption of that of the heart in this way:

In the *animal* life the organs are no longer excited internally by the blood, nor externally by the motion of the surrounding parts, two of the chief causes of the action of the animal organs: 2. the brain failing equally to be excited, is unable to communicate with any of those organs.

In the *organic* life, the cause of the interruption of its phenomena is, first, as in the animal, the want of internal and external excitation of the different viscera: 2. the absence of the matters necessary to the various functions of this species of life, all foreign to the influence of the brain.

In the following section the author treats of the *influence which the death of the heart exerts on the universal death of the system.* Whenever the heart ceases to act, universal death takes place in the following manner:---The action of the brain first ceases for want of excitation; hence sensation, locomotion, and speech, all of which are in immediate dependence on the brain, are interrupted. Besides, for want of excitation on the part of the blood, the organs of these functions would cease to act, supposing the brain to continue its action, and to exercise its ordinary influence over them. The *animal* life in them is suddenly and perfectly extinguished. Man, from the instant that the heart is dead, ceases to exist with regard to surrounding objects.

The interruption of the *organic* life, which commenced by the circulation, takes place at the same time through the want of respiration. As soon as the brain

brain has ceaſed to act, the mechanical phenomena of reſpiration ceaſe, ſince the diaphragm and intercoſtal muſcles are in immediate dependence on it. The chemical phenomena, likewiſe, are interrupted, becauſe the heart can neither receive nor communicate the materials neceſſary to their production.

Univerſal death continues to take place by little and little, and in a gradual manner, by the interruption of the ſecretions, the exhalations, and nutrition. This laſt function ceaſes firſt in the organs that naturally receive red blood, becauſe the excitation at firſt produced by this fluid can only be kept up by the ſame means, and this means then fails. It ceaſes at a later period in the colourleſs parts, becauſe, being leſs ſubject to the influence of the heart, they feel leſs ſpeedily the effects of its death.

In this ſucceſſive termination of the laſt phenomena of the internal or organic life, the power or vital energy ſubſiſts after the functions peculiar to it have ceaſed: thus the *organic* ſenſibility and contractility ſurvive the digeſtive, ſecretory, and nutritive functions.

In the order which has now been deſcribed, death takes place when it ariſes from an aneuriſmal rupture or wound of the heart or large veſſels; from polypi formed in their cavities; from ligatures artificially applied on them; from the compreſſion of tumours, or abſceſs in their ſides. In this way, too, the author thinks, death is brought on from paſſions of the mind. Syncope, which Dr. Cullen attributed to the ceſſation of action in the brain, as its primary cauſe, when it aroſe from paſſions of the mind or profuſe evacuations, is here conſidered as being always an affection of the heart, the brain being only ſecondarily affected. The author afterwards endeavours to ſhew that the cerebral ſyſtem exerts no direct influence on that of the circulation; that there is no reciprocity between theſe two ſyſtems; that the changes induced on the former

produce no analogous change in the latter, whilſt thoſe of the heart neceſſarily and conſtantly modify the actions of the brain. If we interrupt, he obſerves, all the nervous communications that unite the heart with the brain, the circulation continues as before; but as ſoon as the vaſcular communications which keep the brain under the dominion of the heart are intercepted, the cerebral phenomena are no longer to be perceived.

When death commences in the heart, or its great veſſels, it is conſtantly found on diſſection that the lungs are empty of blood. This may be remarked in great hæmorrhages, in aneuriſmal ruptures, in thoſe dead from the exceſs of mental paſſion, &c.

5. *Of the influence which the death of the lungs exerts on that of the heart.* The functions of the lungs, it has been already ſaid, are of two kinds, mechanical and chemical. The ceſſation of action in this organ commences ſometimes by the one and ſometimes by the other of theſe. The admiſſion of air or other fluid between the lungs and the ſides of the cheſt, the diviſion of the ſpinal marrow which induces inſtant paralyſis of the diaphragm and intercoſtal muſcles, violent compreſſion of the thorax, &c.; theſe are the cauſes which induce death by ſuſpending the mechanical functions of the lungs. The cauſes which exert their primary influence on the chemical functions are, aſphyxia from different gaſes, from ſtrangulation, ſubmerſion, or by a vacuum any how produced.

It has been ſuppoſed that, in the former caſe, the lungs collapſing, the blood-veſſels are bent and contorted, ſo as to afford an invincible obſtacle to the tranſmiſſion of the blood through them. But this the author ſhews to be without foundation; firſt, from analogy with other parts. The ſtate of fulneſs or emptineſs of the ſtomach, or other hollow organs, does not appear to affect the circulation in them. Again; if the

the air be exhauſted from the lungs of an animal by the introduction of a ſyringe into the trachea, and the carotid artery be at the ſame time opened, the blood continues to flow with force from the open artery, and conſequently muſt paſs through the lungs, though theſe be in a collapſed ſtate. It appears, therefore, that the doubling and contortion of the blood-veſſels of the lungs during their collapſe are not a ſufficient obſtacle to the paſſage of the blood; that conſequently the interruption of the mechanical phenomena of reſpiration is not the direct cauſe of the ceſſation of the heart's action; but that this is ſuſpended indirectly, becauſe the chemical functions of the lungs are no longer performed for want of the aliment neceſſary to their ſupport.

According to Dr. Goodwyn, the ſole cauſe of the ceſſation of the action of the heart, when the chemical phenomena are interrupted, is the want of excitement of the left ventricle, from the black blood not affording an adequate ſtimulus to its contractions; hence death takes place from the uſual ſupply of blood to the ſyſtem being intercepted. The author, on the contrary, thinks, that in the interruption of the chemical phenomena of the lungs, there is a general affection of all parts of the ſyſtem; that the black blood induces debility and death in all the organs to which it is carried; that it is not for want of receiving blood, but for want of red blood, that they ceaſe to act; in a word, that they all become affected by a material cauſe of death, to wit, black blood.

The movement of the heart may ſlacken and ceaſe, under the influence of black blood, in two ways: firſt, in conſequence, as Goodwyn ſuppoſed, of the internal ſurface of the left ventricle not being excited by it; 2. becauſe, being tranſmitted throughout its ſubſtance by the coronary arteries, this fluid impedes the action of its fibres by its debilitating power.

But

But different circumstances lead the author to suppose that black blood, as well as red, is a sufficient excitant of the heart's contractions. When death is induced by suspending the function of the lungs, the *animal* life first ceases, the heart continuing its action for some time. If, during the suspension of respiration, an artery be opened, the blood is seen to become darker and darker, till it acquires the colour of venous blood; yet it continues to flow for a time with as much force as the red blood.

It is by its contact with the fleshy fibres at the extremity of the arterial system, and not by its action on the inner surface of the heart, that the author supposes the black blood to act. Thus it is only by little and little, and when each fibre of the heart has been penetrated by it, that its power diminishes, and at length ceases; whilst, in the contrary case, the diminution and cessation ought to be sudden and immediate. The author conjectures that death, when produced by asphyxia, is the consequence of a general effect produced by the black blood on the nerves that accompany the arteries in every part. The exact way, however, in which it acts in producing this effect; whether by directly destroying action by any positive properties, or indirectly by the absence of those which enter into the composition of arterial blood, and which distinguish it from venous, the author does not presume to determine. The solution of this question evidently embraces the inquiry, whether oxygene be the principle of irritability; whether carbone and hydrogene act in the opposite way, &c. &c.

6. The next object of investigation is, *the influence which the death of the lungs exerts on that of the brain.* The following experiments shew that by interrupting the chemical functions of the lungs, the black blood operates in destroying that of the brain in a similar manner as in the arterial system. When the

the blood was transfuſed from the carotid artery of one dog into the carotid of another, the functions of the brain appeared to undergo no viſible change, nor was the health of the animal materially affected. When, on the contrary, the blood from the jugular vein was injected by means of a ſyringe into the carotid artery, the animal was immediately agitated, his reſpiration became hurried, and all the ſymptoms of aſphyxia preſently took place; the *animal* life was entirely ſuſpended; the heart ſtill continued to beat, and the circulation to be carried on for the ſpace of half an hour, when the *organic* life alſo terminated. This experiment was frequently repeated, and always with a ſimilar reſult.

The author injected the carotids of different animals with ink, oil, wine, common blue water, &c.; with the excrementitious fluids, as urine, bile, and catarrhal mucus; all of them with the effect of inducing death. The ſeroſity of the blood, ſeparated from the coagulum, was likewiſe fatal when injected into the carotid artery, though the effects in this caſe were ſlower in taking place, and ſometimes the animal ſurvived the experiment for ſeveral hours. That theſe acted on the brain itſelf, and not on the inner ſurface of the arteries, appears from hence,—that the ſame fluids, when injected into the crural artery, were not mortal, though a paralyſis followed their application. A great variety of other experiments are related, all tending to prove the primary action of black blood on the brain itſelf, when the chemical function of the lungs is interrupted. The phenomena obſervable in men in a ſtate of aſphyxia lead alſo to a ſimilar concluſion.

In every ſpecies of aſphyxia, or ſuſpended animation, the functions of the brain are the firſt ſuſpended: ſenſation is loſt, and the relation to ſurrounding bodies deſtroyed. The action of the heart ſtill ſubſiſts for a time. Thoſe who have recovered from this ſtate expreſs their having felt a ſenſe of ſtupefaction and diſ-

order

order in the head; whilſt in thoſe in whom the pulſe and action of the heart have been imperceptible, recovery has rarely taken place. In numerous experiments, the author never found the animal recover after this period.

7. The author next examines *the influence which the death of the lungs exerts on that of the other organs of the body* He takes occaſion in this place to point out the appearances which take place in the blood, when the chemical function of the lungs is ſuſpended. In order to obſerve this, the trachea of a dog was laid bare, cut acroſs, and a ſtop-cock adapted to it, ſo that air could be admitted or withheld at pleaſure. A ſmall tube was likewiſe inſerted into one of the large arteries of the ſame animal, by which means the change of colour in the blood could be readily perceived. The following were the changes obſerved:

When the reſpiration was totally ſtopped, the blood flowing from the artery began to grow of a darker colour in the ſpace of about thirty ſeconds; in the ſpace of a minute its colour was much deepened; and after a minute and a half, or two minutes, it perfectly reſembled venous blood. If the trachea were ſhut immediately after expiration, the above effects took place more ſpeedily; and if the air were exhauſted from the lungs by means of a ſyringe, the change in the colour of the blood took place almoſt inſtantaneouſly, at leaſt in about twenty or thirty ſeconds; in which time it might be ſuppoſed all the blood contained between the lungs and the open artery was evacuated.

If, inſtead of exhauſting the lungs, an additional quantity of air were forced into them, and retained there, the diſcoloration took place more ſlowly; three minutes being required to completely blacken the blood.

Such

Such are the phenomena obſerved whilſt aſphyxia comes on, and death is about to take place. On reſtoring the function of reſpiration, the following were noticed:

On opening the trachea after it had been ſhut for ſome minutes, the air immediately penetrates the bronchiæ. The animal expires forcibly the contained air, greedily abſorbs a freſh portion, and repeats, with precipitation, ſix or ſeven deep inſpirations and expirations. If at this time the open artery be obſerved, a very red jet is found to ſucceed to the black ſtream before furniſhed: the interval between the two does not exceed, at moſt, thirty ſeconds. There are no ſucceſſive ſhades of colour; the change is inſtantaneous. If the air be admitted into the trachea through a ſmall aperture, the change of colour is leſs vivid, but equally prompt.

In order to determine the effects of different gaſes on the colour of the blood, bladders containing theſe were adapted to the extremity of the divided trachea. Hydrogene and carbonic acid were the gaſes employed. For the ſpace of about three minutes no particular change was obſervable; but at this period the animal became agitated, and the reſpiration hurried and embarraſſed; the blood flowing from the carotid became at this time darker, and in four or five minutes quite black. No material difference was obſerved in the effects of the two gaſes. When oxygene gas was employed in the ſame manner, the blood was a much longer time in loſing its red colour, but it did not in this caſe acquire a more florid tint than is natural to it.

The circulation of black blood throughout the different organs of the body is obſervable on viewing the various parts, as the muſcles, nerves, ſkin, mucous and other membranes, the granulations of ulcers, &c. In ſome of the capillary veſſels, however, the black blood appears to be arreſted, giving riſe to the livid hue obſervable in particular parts; as the face, lips, &c.

8. The

8. The next article treats *of the influence which the death of the lungs exerts on the general death of the body.* The author traces here in ſucceſſion the phenomena of general death, as they ariſe from that of the lungs. This is ſucceeded by ſome remarks on the different ſorts of aſphyxia which vary from each other in their ſymptoms, though in each the ſame change of colour in the blood is obſervable. The different ſymptoms in different kinds of aſphyxia depend either on the time in which death takes place; or on the phenomena which ariſe at the laſt moments of life; or on the ſtate of the organs with regard to the ſum of powers they retain after life has been extinguiſhed.

1. Aſphyxia takes place rapidly in the ſulphurated hydrogene and nitrous gaſes; in certain vapours that ariſe from privies, &c.; whilſt in carbonic acid gas, azote, air exhauſted by reſpiration, pure hydrogene, in water, in an exhauſted receiver, &c., the ſuſpenſion of life takes place more ſlowly.

2. Aſphyxia varies in regard to the phenomena which accompany it: ſometimes the animal is violently agitated and convulſed; at others, life paſſes away in a ſtate of tranquillity like ſleep.

3. Laſtly, the phenomena which follow the ſtate of aſphyxia are equally variable. The dead body of a drowned animal is cold; whilſt that of another ſuffocated by the fumes of charcoal preſerves its heat for a conſiderable length of time. And ſo of the reſt.

In order to diſcover the cauſe of theſe differences, the author diſtinguiſhes aſphyxia into two claſſes: 1. thoſe which ariſe from a ſimple defect of reſpirable air; 2. thoſe where, to the former cauſe, is added the introduction into the lungs of a deleterious fluid. In the former caſe the cauſe of death is ſimple; to wit, the preſence of black blood in the arterial ſyſtem. The ſymptoms in this caſe vary only as the death is longer or ſhorter in taking place.

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When, on the other hand, death takes place from the inspiration of deleterious gases, the symptoms are different, and vary according to the nature and activity of the particular gas inspired. The different deleterious substances may operate, the author remarks, in two ways: 1. by affecting the nerves of the lungs, which again re-act by sympathy on the brain; 2. by their entrance into the blood, exerting their influence throughout the system by the medium of the circulation.

It is highly probable that the simple action of a deleterious substance on the nerves of the lungs may produce a decided effect in the general œconomy, when it is considered that certain odours act on the pituitary membrane, so as, by sympathy, to suspend the action of the heart in syncope; when it is considered, also, that the sight of a hideous object produces a similar effect; that an irritating injection instantly restores the suspended powers of the system; that the vapours of vinegar, or the juice of an onion, applied to the conjunctiva during syncope, are sufficient to rouse the action of all the organs; and, lastly, that the introduction of certain substances into the stomach is felt immediately throughout the system, before they could possibly have time to enter the general circulation.

The admission of vapours and gases unfit for respiration into the lungs, is proved by these amongst other circumstances. If a person breathe an atmosphere impregnated with the vapour of oil of turpentine, the urine acquires the odour peculiar to this substance. Again; if an animal be suffocated in sulphurated hydrogene gas, and some time after its death a plate of metal be buried amongst the muscles, the surface of it becomes manifestly affected by the sulphur. This was proved by the experiments made under the direction of the *National Institute*, and the author obtained a nearly similar result with nitrous gas. He found even, after numerous experiments, that he could introduce

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into the blood, through the medium of respiration, any of the aeriform fluids. Divide, for example, the trachea in a dog, and by means of a syringe throw in a quantity of gas greater than that of an ordinary inspiration, and retain it there. The animal immediately becomes agitated, falls down, and makes powerful efforts with the muscles of the chest. If we, then, open an artery, even at a distance from the heart, the blood issues out frothy, and gives out a quantity of air-bubbles.

If hydrogene were the gas employed, we convince ourselves of its having passed unchanged into the blood-vessels by its inflaming at the approach of a lighted taper. The animal never recovers after this effect is observed. The effect is just the same as if the gas had been injected into a vein.

The author goes on to prove that in the greater number of diseases death commences in the lungs. Whatever were the seat of the principal disease, whether it were an organic affection, or a general lesion of functions, as in fever, we observe almost always in the last moments of existence that the lungs become embarrassed, and the respiration difficult; the air enters and returns with pain, the blood imperfectly acquires a florid colour, and at length circulates nearly black in the arteries. Hence the sensations and intellectual functions become impaired, and soon, together with the rest of the animal life, are extinguished. The cessation of the organic or internal life closes the scene.

9. *Of the influence which the death of the brain exerts on that of the lungs.* When the brain in man ceases to act, the functions of the lungs are suddenly suspended. This phenomenon, constantly observed in animals of warm and red blood, can only take place in two ways: either the action of the brain is direct-

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ly neceſſary to that of the lungs; or, theſe are influenced by the brain indirectly, through the mediumof the intercoſtal muſcles and the diaphragm.

That the brain has no direct influence on the lungs, is proved, the author thinks, from the following conſiderations: the brain can only directly influence the lungs by the par vagum, or by the great ſympathetic nerve, the only ones which eſtabliſh the communication between thoſe organs. But neither irritation of the par vagum, nor their diviſion, is followed by the immediate deſtruction of the function of reſpiration. Nor is the effect materially different if the intercoſtal nerves be divided, or both together. The death of the animal, indeed, follows after ſome days, but the effect is too remote to admit of an immediate dependence of the function of reſpiration on thoſe nerves, and conſequently on the brain.

There muſt, therefore, be, between the brain and the lungs, ſome intermediate link or links of connexion, the ſuſpenſion of which determines the ſuſpenſion of the latter. Theſe are the diaphragm and intercoſtal muſcles, which are immediately dependent on the brain for their action.

When the ſpinal marrow of a dog is divided between the laſt of the cervical vertebræ and the firſt of the dorſal, the intercoſtal nerves, cut off from their communication with the brain, ceaſe their action; the muſcles of the ſame name become paralytic; reſpiration is carried on by the diaphragm alone, which receives its nerves, the phrenic, from the part of the medulla ſpinalis ſituated above the diviſion.

If the phrenic nerves alone be divided, the diaphragm becomes motionleſs, and the reſpiration is carried on by the intercoſtal muſcles only.

In both thoſe caſes life is preſerved for ſome conſiderable time. But if the phrenic nerves and the ſpinal marrow towards the bottom of the cervical region be divided at the ſame time; or, which comes to the

ſame thing, if the ſpinal marrow be divided above the origin of the phrenics, then, as all communication is interrupted between the brain and the active agents of reſpiration, death takes place ſuddenly. In order to produce ſudden death, therefore, by cutting the ſpinal marrow, it is neceſſary that the diviſion be made above the part where the phrenic nerves are given off: and ſo of other injuries of this part.

From what has been ſaid, it is manifeſt that the brain acts indirectly only on the lungs. In leſions of the brain the intellectual functions are firſt affected. When the injury is ſlight, all that portion of the *animal* life by which we receive the impreſſions of external objects, and the functions dependent thereon, as memory, imagination, judgment, &c., are deranged. In greater degrees of injury, the voluntary muſcles are affected, and palſy enſues. And when the leſion is in the higheſt degree, the intercoſtal muſcles and the diaphragm partake of the general affection, and ſudden death is the conſequence.

10. *Of the influence which the death of the brain exerts on that of the heart.* When the action of the brain is extinguiſhed, that of the heart ceaſes alſo; but every thing, the author obſerves, tends to prove that the brain exerts no direct influence on the heart, although the brain is in immediate dependence on the heart, by the motion it receives therefrom.

Irritation of the brain of various kinds, and compreſſion of this organ, whether mechanical, or from blood or ſerum effuſed, renders the voluntary muſcles paralytic; whilſt the action of the heart, provided the paralyſis does not extend to the muſcles of reſpiration, continues unimpaired. Opium, too, and wine taken in a certain doſe, diminiſh for a time the energy of the brain, but no ſuch effect is produced on the heart. It ſeems to be a general law of the œconomy, that every organ under the direct influence of the brain ſhould be ſubject for that very reaſon to the will.

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The independence of the heart on the brain is proved, too, by various galvanic experiments inſtituted by the author, and which were made with the greater caution, as others have aſſerted that the heart and the other muſcles of the *organic* life do not differ, in point of ſuſceptibility for the galvanic impreſſion, from the muſcles of the *animal* life, to wit, the voluntary. When he armed the brain, heart, and muſcles, of the inferior extremities in a frog, and eſtabliſhed a communication between them, convulſive motions of the limbs were conſtantly obſerved to take place, but the action of the heart underwent no viſible change. Various other experiments of a ſimilar kind were made, and attended with analogous reſults.

Nor was the reſult different in warm-blooded animals. The author had repeated opportunities of making experiments of this kind on the bodies of perſons who had ſuffered by the guillotine thirty or forty minutes before. In ſome the mobility was wholly extinct; in others it was perceptible in all the muſcles by the ordinary agents, and eſpecially by the galvanic influence. But he could never diſcover the leaſt movement by arming the ſpinal marrow and the heart; or the heart and the nerves which it receives from the ganglions by the ſympathetic, or from the brain by the par vagum. However, mechanical ſtimuli applied directly to its fleſhy fibres occaſioned ſenſible contractions.

It follows, therefore, that there is ſome intermediate organ, the interruption of the action of which is the proximate cauſe of the ceſſation of that of the heart; and this organ is the lungs. When death takes place in the heart in conſequence of previous injury of the brain, the following is the order of the phenomena: interruption of the action of the brain; ceſſation of action in all the muſcles of the animal life, and conſequently of the intercoſtals and the diaphragm; conſequent ceſſation of the mechanical phenomena of

reſpiration; ſuſpenſion of the chemical phenomena, and, in conſequence, of the reddening of the blood; penetration of black blood amongſt the fibres of the heart; laſtly, debility and ceſſation of action of thoſe fibres.

Death which ſucceeds to conſiderable injuries of the brain, has much analogy, therefore, with that of different aſphyxiæ; and is merely more ſpeedy in taking place. The blood in the arteries is dark-coloured; the heart itſelf is livid, as is the general ſurface of the body.

11. *Of the influence which the death of the brain exerts on that of all the other organs.* The author here firſt inquires, whether the interruption of the *organic* functions be a direct effect of the ceſſation of the cerebral action. But obſervation and experience, as in the preceding article, concur in proving that all the internal functions, as well as the action of the heart, are withdrawn from the immediate empire of the brain; and that conſequently their interruption is not immediately derived from the death of that organ.

Various diſeaſes of the brain, as apoplexy, concuſſion, effuſion, inflammation, &c. &c. which occaſion an almoſt general ſuſpenſion of the *animal* life, both ſenſation and voluntary motion being loſt, yet ſuffer the *organic* functions to continue for a conſiderable length of time with little diminution of energy. The ſecretions, exhalation, nutrition, &c., take place nearly as in common.

In ſleep, which is a ſuſpenſion of the functions of the brain, the ſecretions go on; digeſtion is perfectly performed; all the exhalations, particularly the ſweat, are augmented; and nutrition, probably, is even better performed than in the waking ſtate. The relaxation of the internal organs, therefore, is not the conſequence of the relaxation of the brain.

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In palſies, ſpaſms, and convulſions, where the energy of the brain is ſo materially affected, as manifeſted in the external functions, the internal or organic functions are ſteadily and quietly performed. In children born without a brain, where the other organs are all perfectly formed, the independence of the *organic* life on the brain is ſtrikingly ſhewn. In animals, alſo, naturally wanting the brain and nervous ſyſtem altogether, as the polypus, capillary circulation, abſorption, and nutrition, are all perfectly performed. The greater part of the organic functions, likewiſe, are common to both animals and plants; the latter of which poſſeſs nothing like a brain or nervous ſyſtem.

Beſides the conſiderations above noticed, there is ſtill another, which ſeems to prove that the *organic* functions are not in immediate dependence on the brain. This is, that the greater number of the viſcera which ſerve thoſe purpoſes receive few or ſcarcely any nerves from the brain, but a great many from the ganglions. This anatomical fact is obſervable in the liver, the kidney, the pancreas, the ſpleen, the inteſtines, &c. &c. In the organs, even of the *animal* life, there are often nerves which ſerve for the external functions, and others for the internal; in this caſe the one ſet comes directly from the brain, the other from the ganglions. Thus the ciliary nerves, which originate in the ophthalmic ganglion, preſide over the nutrition and ſecretions of the eye; whilſt the optic, ſpringing from the brain itſelf, ſerves directly the purpoſes of viſion. Thus the olfactory nerve is the agent of perception of odours, whilſt the fibres from the ganglion of *Mekel* relate only to the organic phenomena of the organ.

But the nerves of the ganglions are unfit to tranſmit the cerebral action; for we have ſeen that the nervous ſyſtem proceeding from theſe bodies ought to be conſidered as perfectly independent of the cerebral nervous ſyſtem; that the great ſympathetic does not derive

its origin from the brain, the ſpinal marrow, or the nerves of the *animal* life; that this origin is excluſively in the ganglions; that, properly ſpeaking, this nerve cannot be ſaid to exiſt, being, in fact, the reunion of as many ſmall nervous ſyſtems as there are ganglions which are the particular centers of the organic life, analogous to the great and unique nervous center of the *animal* life, the brain.

The interruption of the functions of the *organic* life, therefore, is only an indirect effect of the ceſſation of the cerebral action, and takes place in the order pointed out in the laſt article.

12. The laſt article treats *of the influence which the death of the brain exerts on the general death of the ſyſtem.* When death takes place primarily from the brain, the phenomena ſucceed each other in the following order: annihilation of the cerebral action; ſudden ceſſation of ſenſation and voluntary motion; paralyſis of the diaphragm and intercoſtal muſcles; interruption of the mechanical phenomena of reſpiration, and of the voice in conſequence; annihilation of the chemical phenomena; entrance of black blood into the arterial ſyſtem; failure of the circulation by the contact of this blood on the heart and arteries, and by the abſolute immobility of all the parts, and of the thorax in particular; death of the heart, and ceſſation of the general circulation; ſimultaneous interruption of the *organic* life, eſpecially of the parts uſually furniſhed with red blood; abolition of the animal heat, which is the product of all the different functions; conſequent ceſſation of action in the colourleſs organs, which are later in dying than other parts, becauſe the fluids that nouriſh them are more independent of the great circulation.

Although in this kind of death, as in the two preceding, the functions are ſuddenly annihilated, nevertheleſs many vital properties remain for a certain time: the

the organic ſenſibility and contractility, for example, are very manifeſt in the muſcles of both ſpecies of life; the galvanic ſuſceptibility remains very viſibly in thoſe of the animal life. Theſe properties are loſt more or leſs quickly as life is more or leſs tardily extinguiſhed. The more rapidly death is induced, the more energetic the contractility is found, and the longer in diſappearing

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ART. XIII. 1. GULIELMI HEBERDEN, *Commentarii de Morborum Hiſtoria et Curatione.* 8vo. 417 pages. London, 1802. PAYNE.

2. *Commentaries on the Hiſtory and Cure of Diſeaſes. By* WILLIAM HEBERDEN, *M.D.* 8vo, 483 pages. London, 1802. 8s. PAYNE.

NOTHING can well be conceived more intereſting to the profeſſional world than the obſervations of an enlightened and attentive phyſician, collected during a long and active life, and the reſult of very extenſive experience. How worthy the attention of practitioners the preſent collection is, may be judged of from the deſervedly high character the author maintained among his cotemporaries, and from the plan he has purſued in his work, as pointed out in the introduction.

'Plutarch ſays, that the life of a veſtal virgin was divided into three portions; in the firſt of which ſhe learned the duties of her profeſſion, in the ſecond ſhe practiſed them, and in the third ſhe taught them to others. This is no bad model for the life of a phyſician; and as I have now paſſed through the two firſt of theſe times, I am willing to employ the remainder of my days in teaching what I know to any of my ſons

who may chooſe the profeſſion of phyſic; and to him I deſire that theſe papers may be given.

'The notes from which the following obſervations were collected were taken in the chambers of the ſick, from themſelves, or from their attendants, where ſeveral things might occaſion the omiſſion of ſome material circumſtances. Theſe notes were read over every month; and ſuch facts as tended to throw any light upon the hiſtory of a diſtemper, or the effects of a remedy, were entered under the title of a diſtemper in another book, from which were extracted all the particulars here given relating to the nature and cure of diſeaſes.'

Such was the origin of the remarks here preſented to us, and certainly none could have been better adapted to fulfil the intentions of the learned author. It is eaſy, indeed, to ſee that no conſiderable advances can be made in the knowledge or treatment of diſeaſes, but by following the rout here traced out to us. It is in vain to generalize and frame theories of medicine on the very imperfect and contradictory ſtock of facts that we at preſent poſſeſs. Attempts of this ſort will only ſerve, as they have ever done, to retard the real progreſs of ſcience, and to introduce confuſion and obſcurity where light and order are ſo much wanted. Our modern enthuſiaſts in phyſic, who are ever on the watch for novelty, would do well to imitate the example now ſet before them.

To the Latin copy is prefixed a brief notice of the life and ſtudies of the author, drawn up by his ſon, the preſent Dr. W. H., to whom we are indebted for a valuable work on the *Increaſe and Decreaſe of Diſeaſes*.* Dr. *Heberden* was a Londoner by birth, and ſtudied and graduated at St. John's College, Cam-

* Med. & Chir. Rev. v. 8, p. 254.

bridge.

bridge. For ten years he practiſed phyſic in that univerſity, and afterwards removed to London, where he continued fully engaged in buſineſs for thirty years. The laſt twenty years of his life were paſſed in retirement at Windſor, where he died in the year 1801, above ninety years of age.

The work before us is to be conſidered as purely practical. The inveſtigation of cauſes, excepting ſuch as are perfectly obvious, forms no part of the author's plan. The hiſtory of diſorders is the reſult of ſimple and attentive obſervation; whilſt the effects of remedies deſcribed are ſuch as his own experience, generally confirmed by repetition, ſanctioned. In the account we are about to give, we ſhall follow the author's ſteps, noticing particularly ſuch points as appear to throw light on the hiſtory or cure of diſeaſe.

The firſt chapter contains a few remarks on *Diet.* Many phyſicians, he obſerves, appear to be too ſtrict and particular in the rules of diet and regimen, which they deliver as proper to be obſerved by all who are ſolicitous either to preſerve or recover their health. The too-anxious attention to theſe rules hath often hurt thoſe who are well, and added unneceſſarily to the diſtreſſes of the ſick. The common experience of mankind will ſufficiently acquaint any one with the ſorts of food which are wholeſome to the generality of men; and his own experience will teach him which of theſe agrees beſt with his particular conſtitution.

There is ſcarcely any diſtemper, Dr. H. remarks, in every ſtage of which it may not be ſafely left to the patient's own choice, if he be perfectly in his ſenſes, whether he will ſit up, or keep his bed. His ſtrength and his eaſe are chiefly to be attended to in ſettling this point. The author next combats the prejudices entertained againſt cleanlineſs and changing the linen in ſickneſs; prejudices which were once ſtrong and prevalent,

prevalent, but at preſent, we believe, have nearly diſappeared.

Chap. 2. *Ratio Medendi.* The general principles of cure are here pointed out as conſiſting in the following inquiries: 1. Whether the caſe require evacuations of any kind. 2. Whether it be a diſtemper for which any certain or ſpecific remedy has been found out. 3. The mitigation of particular ſymptoms. 4. In caſes, where no particular remedy is found to have ſucceeded, the employment of means which ſtrongly affect, and make conſiderable changes in the ſyſtem; and, laſtly, the ſupporting the powers of life where there is no room for any other indication.

A judicious eſtimate of the pathology of the moving powers appears in the following paragraph:—'In the phyſiology and pathology of the human body, there has been, perhaps, both too much and too little uſe made of that vital principle which conſtitutes the animal. Some have pretended to a knowledge of it much beyond what we have hitherto attained, and have employed it in the miniſtry of the animal œconomy, and in explaining the cauſes and cures of diſeaſes, guided much more by their own fancies and ſpeculations than by the authority of facts and expe-rience; while others, in accounting for the ſame appearances, have overlooked the laws and powers peculiar to animal life, and have endeavoured to ſolve all difficulties by the common mechanical powers, and by the general properties of dead matter.

'Whatever animation be, experience has undoubtedly acquainted us with ſeveral means both of deadening and of invigorating its operations. Of the firſt ſort is, in an eminent degree, the fox-glove, and all the narcotic poiſons; to the ſecond belong wine and ſpirituous liquors, all ſtrengtheners of the ſtomach, aromatics, and every thing capable of irritating the ſenſes. But vinous liquors, in a certain quantity, oppreſs, and

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ſome of the narcotics, in a ſmall doſe, exhilarate the powers of life.

'Many of the narcotics being applied in a ſmall wound to any part of the ſurface of the body, will have their full effect in damping or deſtroying the vital energy; but moſt of them, and almoſt all of the oppoſite claſs, exert their powers only when taken down into the ſtomach; the control and dominion of which part over the principle of animation throughout the whole body are ſuch, that univerſal refreſhment and invigoration, or faintneſs and death itſelf, will be the inſtantaneous effects of its being touched by certain friendly or injurious ſubſtances.

'In all diſtempers, it is one part of the phyſician's duty to remove or relieve, as far as can ſafely be done, the preſent inconveniences; but the miſchief principally to be dreaded in every illneſs is, its tendency to deſtroy life; and againſt this the patient is moſt ſolicitouſly to be guarded. Now, of the means before-mentioned, by which the vires vitæ can be ſupported and ſtrengthened, great irritations of the ſenſes can only afford a momentary relief in ſudden languors and faintings. Wine and aromatics will, indeed, make a more laſting impreſſion on the ſtomach, and in many languid illneſſes may be adminiſtered with great advantage; but they muſt be uſed with caution, as the vinous liquors may intoxicate, and both of them, in many diſtempers, may excite too great a degree of heat. Dr. Morton's practice in the laſt century has been much cenſured, for his method of cure by an immoderate uſe of aromatics, for the purpoſe, as he ſays, of exciting and expanding the ſpiritus animales. A freer uſe may ſafely be made of the mild aſtringents and bitters, and there are, perhaps, few diſorders in which they would not make very uſeful aſſociates of other medicines. Chamomile flowers in powder are ſufficiently grateful to the ſtomach; but light infuſions of the barks, and woods, and roots,

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are preferable to their powders. Of this very numerous claſs of ſimples, a great variety of medicines may be made; but none, perhaps, better than an infuſion made by one ounce of the Peruvian bark and one drachm of the root of gentian, put into a pint of boiling water. I hardly know that diſtemper in which two ounces of this infuſion might not be taken twice a day with ſafety, and, I believe, with advantage.'

The following chapters are arranged in alphabetical order, the only one, perhaps, without objection, in a work ſo ſtrictly practical.

Chap. 3 contains ſome brief remarks on irregularities of the abdomen, as tumour and pain. The titles of thoſe immediately ſucceeding are, *Abortus*, *Alvus*, *Aneuriſma*, *Angina*, and *Scarlet Fever*; *Aphthæ*, *Arthritis*, *Aſcarides*, *Aſthma*, *Aurium Morbi*.

A very great difference, the author obſerves, is obſervable in different conſtitutions, in regard to the evacuation by ſtool. One man never went but once in a month; another had twelve ſtools every day for thirty years, and afterwards ſeven in a day for ſeven years; and, in the mean time, did not fall away, but rather grew fat.

With reſpect to aneuriſm, it is obſerved, that many tumours of the neck, apparently of this ſort, from having a ſtrong pulſation in them, have, after ſeveral years, ſpontaneouſly decreaſed, till at laſt they have almoſt entirely diſappeared.

The ſcarlet fever and malignant ſore throat are treated of under the ſame head, and conſidered as of a ſimilar nature. 'It ſeems highly probable,' the author remarks, 'that they are both names of the ſame diſtemper, with ſome little variety in a few of the ſymptoms; and this opinion is confirmed, by our finding that they are both epidemical at the ſame time. Even in the ſame family, where a number of children have been ill together, or immediately after one

one another, ſome have had the diſtinguiſhing ſymptoms of the ſcarlet fever, and others of the malignant ſore throat. But the ſolution of this queſtion is of very little importance; for, let the diſtempers be ever ſo different, the method of cure in both is exactly the ſame, excepting only what may be thought neceſſary to be applied to the ulcers of the throat.'

According to the author's experience, ſome children have beyond all doubt been afflicted a ſecond time with this diſeaſe, though it is evident that this happens very ſeldom; for otherwiſe there could be no more queſtion about the poſſibility of a ſecond infection than there is in the itch, or in venereal diſorders. 'The eruption,' it is obſerved, 'ſometimes reſembles the meaſles ſo exactly, as not to be eaſily diſtinguiſhed from the meaſley efflorescence; though this be a matter of great importance, becauſe the method of cure in theſe two diſtempers is extremely different. The redneſs of the ſcarlet fever is more equally diffuſed than in the meaſles, and is not in diſtinct ſpots with the natural colour of the ſkin interpoſed; yet, in ſome few caſes, I have ſeen it ſo. Then, in the meaſles, the eruption riſes more above the ſkin, and occaſions a manifeſt roughneſs to the touch, which is hardly obſervable in the ſcarlet fever, except a very little roughneſs ſometimes in the arms. In the ſcarlet fever there is no cough, the eyes do not water, and the eye-lids are not red and ſwoln; all which rarely fail to attend the meaſles. The time likewiſe of the eruption is different; for it appears in the ſcarlet fever, both in the face and arms, on the firſt or ſecond day; but in the meaſles it begins only on the third day of the fever to be viſible about the chin, and does not come to the arms and hands till the fourth or fifth day.'

There is no other diſtemper, the author remarks, in which a delirium is of ſo little importance as in this: it ſometimes accompanies a ſcarlet fever on the very firſt day; whilſt, in other fevers, it ſeldom comes on

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till they have acquired a dangerous height.—It is rather ſurprizing that the author here takes no notice of anaſarca, ſo common an attendant, or rather follower, of ſcarlatina.

A very good hiſtory of the gout is given, in which Dr. Heberden attacks the numerous prejudices entertained, both by the public and practitioners of medicine, with regard to it. He queſtions much its ſalutary influence with reſpect to other diſorders, and thinks it more than an equivalent for them, whilſt it is certain that it has not the power of preventing many of the moſt formidable. The following obſervations on the Portland powder will be read with much intereſt by thoſe who have ſuffered or are ſuffering under this dreadful malady.

'The Portland powder is one of a great crowd of ſpecifics, of which the riſe, and reign, and fall, have all happened within my memory. It roſe into favour too faſt, and too high, to keep its place; but it appears to me to have ſunk into a ſtate of diſcredit and neglect, as much below its real merit as the firſt praiſes were above it. Before the Peruvian bark was diſcovered, mankind had by repeated trials come to confide in the uſe of thoſe medicines which are next akin to the bark, and will often very effectually cure an intermittent fever, even ſometimes where the bark has failed. In other diſtempers we may obſerve a like gradual dawning of the juſt method of treating them, long before time and experience had advanced it ſo far as to make it generally perceived and acknowledged. Nor is it a ſmall ground of expectation from any medicines, that in them the experience of many ages, and different countries, has ſeemed diſpoſed to centre. This, in ſome meaſure, is the caſe of the Portland powder, many of its ingredients being commended as antarthritic remedies, by a variety of writers both ancient and modern: and the peculiar miſchief which this diſtemper does

does to the appetite and digeſtion makes it probable that its power might be ſo far curbed and counteracted by whatever ſtrengthens the ſtomach, as to afford us hopes of conſiderable relief, if not a cure.

'The Portland powder loſt its reputation partly by the largeneſs of the doſe, which, though almoſt too great for any one, was indiſcriminately given to all; and partly by having all the natural ill effects of the gout imputed to it, particularly palſies and apoplexies; to the cauſing of which diſeaſes I judge the gout to have of itſelf a tendency, becauſe I have ſeveral times known them ſucceed immediately to a regular and ſevere fit. However, the virtues of this powder often appeared to be ſuch, as to make it well deſerve ſome pains in trying to ſecure its good qualities, and to correct its faults: for, during the great vogue of this medicine, the fit was ſo frequently found to be leſſened, or to miſs its uſual time of coming, after this remedy had been taken, that few can have any doubt, and for my own part I have none, of its having produced theſe effects; while its having any ſhare in the miſchief imputed to it is void of any certain proof, or, in my opinion, of much probability. Nor, indeed, was its diſgrace owing to its doing too little, but to its doing too much. The dread of being cured of the gout was, and is ſtill, much greater than the dread of having it; and the world ſeems agreed patiently to ſubmit to this tyrant, leſt a worſe ſhould come in its room.

'If the ſtrengthening of the appetite and digeſtion be thoſe effects of the Portland powder, by which it has either ſhortened or prevented the gouty attacks, then it may be much improved by leaving out ſome ingredients not very uſeful for this purpoſe; and, inſtead of giving the ſame doſe to all, by uſing great attention in proportioning the ſtrength and quantity ſo as to make it be eaſily borne by the patient. It will be abſurd to attempt ſtrengthening the ſtomach by ſuch means as will not fail, either by their load or nauſeouſneſs, to bring

bring on diſguſt and loathing, which has frequently happened in the uſe of the Portland powder.

'The herbs germander, ground-pine, worm-wood, carduus benedictus, bog-bean or bug-bane, horehound, and the leſſer-centaury, the flowers of chamomile, Seville orange-peel, the Peruvian bark, and the roots of columbo, and gentian, are the principal ſtomachic ſimples; which perhaps exert their powers more fully in powder than in an infuſion or tincture. This variety affords us ſcope for contriving a medicine tolerable to the palate, and agreeable to the ſtomach of almoſt every patient. It is impoſſible to decide, without trial, which of theſe would be the beſt borne by any particular patient; and, leſt any one ſhould be peculiarly diſagreeable, it will be uſeful to mix three or four of them together, by which their general benefit may be obtained; while the ſeparate qualities of each, to ſome of which the patient might have a diſlike, would be too inconſiderable to occaſion any inconvenience. The length of time during which it muſt be continued is an additional reaſon for carefully avoiding every thing offenſive, either in the quality or doſe of the medicine; at the ſame time it ſhould be made as powerful, and as much ſhould be given, as can eaſily be borne. Not leſs than fifteen grains ſhould be directed twice a-day, in a little ſimple peppermint water or common water; and few would bear to take more than two ſcruples for a continuance. Three or four grains of any aromatic moſt agreeable to the patient would be an uſeful addition, by aſſiſting the ſtomachic virtues of the bitter, and by enabling the patient to perſevere for two years or more in taking it; as the aromatic might be varied, and give a new taſte to the medicine, as often as any diſguſt aroſe.'

The diſtinguiſhing characters of gout and rheumatiſm are minutely pointed out; yet the author owns that there are caſes in which the criteria of both are ſo blended

blended together, that it is not eaſy to determine whether the pains be gout or rheumatiſm. 'The difficulty, however, of diſtinguiſhing theſe two maladies,' it is obſerved, 'will be of the greater or leſſer moment, according to the reſult of a very important inquiry; namely, how far theſe two diſtempers, which, though of the ſame family, are marked with ſuch different features, reſemble one another in the treatment and cure which they require? Moſt practitioners, indeed, have formerly determined, that the remedies againſt the gout and rheumatiſm are of a directly oppoſite nature; that no cordials are too ſtrong for the one, and no evacuations too plentiful for the other. Sydenham condemns taking away blood in the gout; but in the rheumatiſm adviſes not leſs than four copious bleedings within the ſpace of ſix or ſeven days, and ſometimes repeated the bleeding oftener. However, in his later writings he is manifeſtly diſpoſed to abate a little of the violence of this method, which he owns to have found attended in one patient with great inconveniences.

'Since Sydenham's time the antiphlogiſtic treatment appears, upon further trial, to have loſt ſtill more ground. The time may come when the gout will be treated more as an inflammatory diſtemper, and evacuations leſs plentifully employed in rheumatiſms; ſo that the cures of the two diſeaſes may at laſt approach very near to each other. The Portland powder profeſſes itſelf equally adapted to both; and ſome medicines of this ſort, with an occaſional uſe of opium, may at length be found the moſt efficacious antarthritic and anti-rheumatic remedies.'

Speaking of diſeaſes of the Ears, the author remarks, 'In conſequence of a violent blow upon the head or ear, I have two or three times been witneſs to a copious diſcharge of water from the ear, either clear, or lightly tinged with blood, eſpecially on holding the head down: by the account of one of theſe patients there

came not leſs than a pint every day; but this muſt have been ſaid by conjecture, for it could not eaſily have been meaſured.—Whence did this come?'

Chap. 13, 14, 15, of the *Bath Waters;* the *Briſtol Water;* and *Bronchocele.* The virtues of the firſt of theſe are allowed in certain ſtomach affections, particularly when ariſing from hard drinking. The Briſtol water is ſuppoſed by the author to poſſeſs in reality no medicinal power.

Chap. 16—to 23. The titles of theſe are, *Calculus Urinæ: Capitis dolor: Capitis dolores intermittentes: Carbunculus: Chorea ſancti viti: Coxæ morbus et exulceratio: Crurum dolor, Tumor, Inflammatio, et Ulcus: Cutis vitia.*

Lime-water, the author obſerves, has in many caſes appeared to communicate a ſolvent power to the urine. A perſon who took it for ſeveral years as the only liquor, from not being able to walk acroſs his room, could bear to be carried in a coach without ſprings for ſeveral miles over the old rough pavement of London without making any complaints: and his urine in a few days diſſolved a fragment of a calculus immerſed in it, which had before been ſteeped in the urine of two other perſons for ſome months without loſing any part of its weight.

'Soap leys, perhaps, communicate a ſtronger ſolvent power to the urine; but it muſt be owned, that neither of them do ſo much as is wanted; their effect at beſt is very ſlow, and upon ſome ſtones they ſeem to have none at all; for, immerſed in the ſtrongeſt undiluted ſoap leys, they hardly ſeem to waſte. But, ſtill, if they hinder the growth of many ſtones, and looſen the texture of thoſe already formed, and diſſolve, as is probable, their ſharp points, which are the chief cauſes of pain, they muſt be conſidered as valuable medicines. I knew a perſon who took half an ounce of ſoap leys almoſt daily for ten years, without the leaſt ground to ſurmiſe that it had any ill effect upon his general health. There

was

was reaſon to believe that they had helped to break in pieces ſome of the ſtones in his bladder; for he had voided ſome ounces of very large fragments, convex on one ſide and concave on the other; and, from being quite confined to his houſe, became able to bear a coach, and for the laſt years of his life had ſuffered very little pain, of which he uſed to have frequent and very tormenting fits. But yet this long courſe, perſevered in ſo ſteadily, did not crumble them all; for, after his death, one kidney was found full of ſtone, and there were two ſtones in the bladder, one of which weighed ʒvi. ℈ii. gr. iv.; the ſmaller ʒij. gr. xii. It appears doubtful whether either lime-water or ſoap leys have any power over the ſtone in the kidneys.'

On the ſubject of diſeaſes of the ſkin the author remarks, that there ſeems to be very little if any contagion in cutaneous diſorders, if we except the itch and ſcald-head. A woman, who had for five years had broad branny eruptions, ſuckled a child, whoſe ſkin remained perfectly clear from any diſorder. The itch is well known to be very infectious; but there is an appearance exactly like it, and which could he traced up to its having been received from an infected perſon, and yet differs from the true pſora by being very little, if at all, infectious, by its reſiſting all the uſual remedies, and by its returning frequently for many years.

(To be continued.)

ART. XIV. *The Medical and Phyſical Journal.* Nos. 41 and 42, *for July and Auguſt*, 1802. Price 2s. 6d. each.* London, PHILLIPS.

THE

* In compliance with the repeated ſolicitations of ſeveral of our country correſpondents, who remind us of our declared intention of collecting from every ſource, we have determined to notice regularly the numbers of the above Journal, as they ſucceſſively appear. In doing this, however,

THE firſt article we ſhall notice in the preſent numbers of this *Journal* is the relation of ſome inſtances of Popliteal Aneuriſm, by Mr. *Aſtley Cooper*, for the purpoſe of recommending a more ſecure method of applying the ligature in ſuch caſes. This conſiſts in paſſing an eyed probe, armed with a double ligature, having a curved needle at each end, under the artery, firſt cleared from the ſurrounding parts to the extent of an inch, and then cutting away the probe. The ligatures are to be ſeparated about an inch from each other, and tied. The needles are then to be paſſed through the coats of the artery, cloſe to each ligature, and between them: the thread thus carried through is to be tied into the knot of the ligature before ſecured around the veſſel: thus a barrier is formed which prevents the ligature being ſlid over the extremity of the artery.

An intereſting account is given of ſome caſes of *Dyſphagia*, or contracted œſophagus, where the introduction of a probang into the ſtomach for a few times effectually and permanently removed the impediment to ſwallowing. The relation is by Dr. *Stevenſon*, of *Kegworth*.

An account is given of a new machine, invented by a Mr. *Smith* (not of the medical profeſſion), and which he terms the *Air-pump Vapour Bath*. It is a contrivance for taking off the preſſure of the atmoſphere by means of an adapted air-pump. The taking off the weight of the atmoſphere from a part of the body muſt of courſe very materially influence the ſtate of circulation in that part, and, ſecondarily, in ſome degree, that of the whole ſyſtem. Hence it may very probably deſerve to occupy an important place in the materia

ever, we ſhall ſtudiouſly avoid all matters of ſpeculation and controverſy; confining ourſelves, excluſively, to the brief mention of facts which are ſufficiently novel to be intereſting, and which, at the ſame time, carry with them intrinſic marks of authenticity and correct obſervation. This, we preſume, will add to the value of our compendium, without trenching far on its limits.

medica.

medica. And, accordingly, it is ſaid by the proprietor to be very efficacious in gout, rheumatiſm, contractions of muſcles, and the like local affections. Nor do its merits reſt here: the proprietor 'has reaſon to believe, from ſome recent caſes, that acute diſeaſes alſo are not beyond the reach of its influence; and that, from its power in promoting a copious diaphoreſis and relaxation of the whole ſyſtem, it may be made to produce the happieſt effects in *phrenitis*, *pleuritis*, *enteritis*,' &c.

All this, probably, is to be taken *cum grano ſalis*. The principle of the machine is evidently that of the cupping-glaſs on an extended ſcale. The thought is certainly ingenious, and merits encouragement. The proprietor is Mr. *Blegborough*, ſurgeon, of Oxford Street, London.

A caſe of *Apoplexia Hydrocephalica* is related by Dr. *Woodforde*, of Ansford, Somerſetſhire, where the patient was evidently ſaved by an early detection of the real nature of the diſorder, and the application of powerful means of relief; viz. blood-letting, and the digitalis.

A tedious and unintereſting controverſy between Dr. *Langſlow* and Mr. *Crowfoot*, reſpecting a caſe of apoplexy, after having been carried through ſeveral numbers, is here again continued, and of which perſonal alluſion engroſſes the greater ſhare. But our readers have already had enough of the ſubject.

A curious, but not ſingular,* inſtance of a negro turning white, is related by Mr. *T. Dancer*, of Jamaica. The change of colour took place on the man's recovery from a ſlight fever, without any other obvious cauſe.

* Such an one occurred not long ſince in America, and is deſcribed in the New-York Medical Repoſitory, vol. 4.

A number of judicious remarks are made by Mr. *Chamberlaine* on the New Medicine Act paſſed the laſt ſeſſion of parliament, and which (unintentionally, we ſhould ſuppoſe, on the part of the legiſlature) is calculated materially to affect practitioners in pharmacy, who are at all in the habit of vending drugs, and even where this is not the caſe. A number of ſimple drugs are included in the ſchedule as liable to the *quack medicine duty*, and which of courſe it will be hazardous for any one to furniſh without a licence and a ſtamp affixed. Such, for inſtance, amongſt many others, are Turkey Rhubarb, Indian Arrow-root, Spaniſh Juice, Gouland's Extract; and various pharmaceutic preparations, as Syrup of Tolu, Bliſtering Ointment, Spt. Ætheris Nitroſi, &c.

Some modification of the *act* in queſtion will, no doubt, be found neceſſary; and till this is brought about, Mr. *Chamberlaine* recommends an aſſociation and general ſubſcription of the practitioners in pharmacy, for the purpoſe of defending each other againſt informations and proſecutions at law.

Mr. *Goe*, ſurgeon, of *Louth*, mentions a caſe of divided Trachea, which terminated favourably, and where it was found neceſſary, in order to bring the divided parts together, to paſs the ligature directly through the ſubſtance of the trachea. This was done without exciting any particular irritation or cough.

A detail of the evidence delivered before the Committee of the Houſe of Commons on Dr. *Jenner*'s petition is given, but which we need not dwell on, as we have gone already a ſufficient length into the ſubject. We cannot, however, refrain from obſerving, that the queſtion ſeems unaccountably to have aſſumed a party-form; the friends of Dr. *Jenner*, if not himſelf, claiming evidently more for him than he is entitled to, which very naturally leads to a diſcuſſion of his real merits in the matter.

That

That Dr. *Jenner* has no title to the merit of diſcovery, every one, we think, muſt be convinced, who attends to the evidence adduced in the laſt number of the *Med. and Chir. Rev.* He took up that which he found before him, but which had unaccountably been ſuffered to lie dormant, and ſo, perhaps, might have remained, but for his individual exertions. In this point of view, when the great importance of the vaccine inoculation is conſidered, he was undoubtedly entitled to an honourable remuneration from his country; and he has obtained it. Whilſt, however, ſome of his friends object to the ſmallneſs of the remuneration, and others ſtate, for the purpoſe of enhancing his claims, the ruin, almoſt, of his private fortune, and the neglect of his general practice in the purſuit, one is led to lament the ill-judged partiality of friendſhip, and to exclaim 'from my friends defend me!'

If we are indebted to Dr. Jenner for leading us into ſo noble a path, we owe no leſs to the zeal of others, for conducting us ſo far and ſo ſafely on our journey. The diſcovery of many of the laws of the vaccine diſeaſe is unqueſtionably due to other inquirers; and it is certain that Dr. Jenner's preſence in the metropolis, and the neglect of his private concerns, in no degree contributed to the vaſt progreſs which the new practice has made. Dr. Jenner's merit is, beyond all queſtion, great, and ſuch as entitles him to the public gratitude: it needs not to be eſtabliſhed on a falſe baſis.

ART. XV. *Medecine Legale et Police Medicale. On Legal Medicine and Medical Police. By* P. A. O. MAHON, *Profeſſor of Legal Medicine and of the Hiſtory of Medicine, at Paris, &c. &c. With ſome Notes by Cit.* FAUTREL, *Antient Officer of Health to the Armies.* 8vo. 3 vols. Paris, 1801.

LEGAL *Medicine*, or Medical Juriſprudence, the author obſerves, is the application of medical ſcience

to the adminiſtration of the laws. It requires a profound knowledge of medicine. The knowledge of anatomy is not the only requiſite to the *legal* phyſician [*medecin legiſte*], as has been ſuppoſed: on the contrary, there is not any one of the numerous branches of the art of medicine which may not contribute to the ſuggeſtion and ſupport of medico-legal deciſions.

Phyſicians, in the greateſt eſteem for their knowledge in this branch, by no means confine juridical medicine to the illuſtration and deciſion of certain queſtions that ariſe in the tribunals: they have particularly extended its limits, by the introduction of every thing that has a relation to the preſervation of the public health. The functions which the miniſters of the art of healing exerciſe in thoſe circumſtances of general intereſt conſtitute what is called *medical police*. It embraces in its extent the whole of ſociety; whether in preventing and removing the injurious cauſes which threaten the health of the public; or in combating them with the vigorous means which the ſciences, backed by authority, are capable of employing, in caſe the evil has defeated human foreſight by the ſubtilty of its invaſion, or by the rapidity of its march.

The Germans have written moſt copiouſly and ſucceſsfully on the ſubject of Medical Juriſprudence. The works of Valentine, Alberti, and Techmeyer, treat of it in conſiderable detail: and profeſſors in this branch of art have been appointed in ſeveral of their univerſities. It is one, indeed, of no inconſiderable importance to ſociety; as it embraces objects intimately connected with the characters and lives of citizens. Rapes, poiſonings, ſuicide, aſſaſſinations, infanticides, wounds reputed mortal, &c. are all within its pale.

The preſent work contains the ſubſtance of the author's lectures, as delivered for four or five years laſt paſt. The firſt volume treats of the cauſes, phyſical and apparent, of impotence in both ſexes; of rape; of

pretended

pretended retarded births; of abortion; monsters; madness; and feigned disorders. In the second are considered wounds, as they are mortal or otherwise; apparent and real death; poisoning; and infanticide. The third treats of suspended animation, from drowning, hanging, &c.; and of the signs by which it may be decided, whether a person has been hung dead or alive; whether he has been strangled by others, or committed violence on himself.

After having laid down some specimens of juridical reports and consultations, the author terminates his work by a treatise of public health [*hygeïene publique*], or medical police. This province particularly belongs to government, whose office it is to remove or diminish the evils which are the result of the social state itself.

If it be true, as Rousseau pretends, whose paradoxes and contradictions have been too often taken for truths, that men infect each other, both morally and physically, by associating together; the means of destroying the infection by preventive regulations belong to government; but it is the part of physicians to indicate the means of restoration.

ART. XVI. *The Medical Assistant, or Jamaica Practice of Physic, designed chiefly for the Use of Families and Plantations. By* THOMAS DANCER, *M. D.* &c. 4to. London, 1801.

THIS is a work of considerable merit in point of execution, and calculated to prove eminently useful in the line particularly intended by the author. It contains a popular view of the diseases prevailing in tropical climates, and the remedies best adapted to their relief. It treats at considerable length of the affections to which the negroes are more especially li-

able, and in this reſpect will form a valuable aſſiſtant to the Weſt India planter.

ART. XVII. *Facts deciſive in Favour of the Cow-pock: including an Account of the Inoculation of the Village of Lowther. By* ROBERT JOHN THORNTON, *M. D.* &c. &c. 8vo. 240 pages.

THE firſt ſixty pages of this volume are devoted to the hiſtory of the natural and inoculated ſmall-pox. The remainder contains proofs in favour of the new inoculation, and which the author very properly terms deciſive. They are collected from all thoſe practitioners who have hitherto written on the ſubject, and who have had conſiderable experience of the diſorder. To this is ſubjoined the author's own experience, and which appears to have been on no ſmall ſcale.

It is ſufficient to remark, that it affords, if ſuch were now wanting, ſtrong proofs, in addition to thoſe already given to the public, of the ſafety and truly preventive power of the vaccine inoculation.

ART. XVIII. *A Letter to Sir Walter Farquhar, Bart. on the Subject of a particular Affection of the Bowels, very frequent and fatal in the Eaſt-Indies.* 8vo. 2s. London, 1801. CADELL and DAVIES.

THE diſeaſe here deſcribed by the author, Mr. *Duncan*, is thus characterized:

'The diſeaſe of which I ſpeak, and which is by much the moſt acute and fatal I have met with in India, is an inflammation of the colon, attended, from the beginning, with a ſevere fixed pain above the pubis; with extreme difficulty of making water, and frequently

frequently an entire ſuppreſſion of urine. There is, at the ſame time, a violent and almoſt unceaſing evacuation from the bowels of a matter peculiar to the diſeaſe, and which I cannot deſcribe more correctly, than by obſerving that it exactly reſembles water in which raw fleſh has been waſhed or macerated. There is always a very high fever, with unquenchable thirſt and perpetual watchfulneſs. The pulſe is extremely hard, frequent, and ſtrong, reſembling that which takes place in the higheſt degree of pleuriſy, or the moſt acute rheumatiſm; and there is a burning heat in the ſkin, which leaves a ſenſation on the finger, as if it had touched a piece of heated metal.'

The chief remedy recommended is opium. Purgatives the author diſapproves of.

ART. XIX. *Practical Obſervations on the Gonorrhœa Virulenta; and a new Mode of treating that Diſeaſe recommended. By* ROBERT BARKER. 8vo. price 2s. 6d. London, 1801. RIVINGTONS.

THE new mode of treatment here recommended conſiſts in the uſe of an injection of tartarized antimony, or emetic tartar, with camphor, according to the following formula:

℞ Camphor ——	℈j.
Mucilag. G. Arab.	ʒ i½
Miſce terendo et adde	
Aquæ font. ——	℥ vj.
Antimon. Tart.	ʒ ij.

This injection the author uſes on the ſuppoſed principle of increaſing the diſcharge, and thus throwing off the poiſon. He objects to aſtringent and ſedative injections, as tending to produce ſtricture, and to carry the virus

virus into the bladder: but his fears in this reſpect are probably without foundation.

ART. XX. *Lexicon Noſologicum Polyglotton Omnium Morborum, Symptomatum, vitiorumque Naturæ et Affectionum propria nomina decem diverſis Linguis explicata continens. Auctore* PHILIPPO ANDREA NEMNICK. J. U. L. Fol. 160 pages, price 1l. 1s. Hamburgh, 1801. Imported by T BOOSEY.

THE utility of a work of this kind to ſtudents, and indeed to all thoſe in the habit of conſulting medical writings in different languages, is too obvious to need inſiſting on. Hence the preſent is introduced without preface or remark. It contains the ſynonyma of diſeaſes, and for the moſt part of their ſymptoms, in moſt of the modern European languages, viz. the German, Dutch, Daniſh, Swediſh, Engliſh, French, Italian, Spaniſh, and Portugueſe; together with their correſponding value in the Latin tongue.

ART. XXI. *Analyſe des Bleſſures d'Armes a Feu: The Analyſis of Gun-ſhot Wounds, and their Treatment: By* PIERRE DUFOUART, *Surgeon in Chief of the Military Hoſpital of Paris.* 8vo. 436 pages, price 7s. Paris, 1801. Imported by T. BOOSEY.

THIS is an uſeful compendium of inſtructions for the treatment of gun-ſhot wounds, the fruits of conſiderable experience and of the beſt opportunities. It is divided into two parts; the firſt treating of wounds of the limbs; the ſecond of thoſe of the three principal cavities of the body with the contained viſcera. We find nothing ſufficiently novel to a Britiſh ſurgeon to induce us to go at any length into the contents.

ART.

ART. XXII. *Cours Elementaire des Maladies des Femmes, &c. An Elementary Courſe of Inſtruction on the Diſeaſes of Women; or an Eſſay on a new Method of ſtudying and claſſing the Diſeaſes of the Sex. By* J. M. J. VIGAROUS, *Profeſſor at the Medical School of Montpellier, &c. &c.* 8vo. 2 vols. Paris, 1801.

THE diſeaſes of the female ſex have excited the particular attention of phyſicians from the time of Hippocrates, and they have very frequently been made the ſubject of particular inquiry. The treatiſe before us is drawn up with minute attention to method, and with a claſſification ſtrictly noſological. The order, however, adopted by *M. Vigarous* is ſomewhat novel; and, in his opinion, more accommodated to the order of nature than other works of a like deſcription.

Having made ſome obſervations on the ſubject of temperaments in general, the author treats of that peculiar to the female ſex, and which, he obſerves, is leſs variable than that of the other, being nearly common to all females. This temperament is the ſanguine; characterized by fulneſs of the cellular tiſſue and ſoftneſs of the organs; by the predominance of the lymphatic ſyſtem, and exceſſive action of the nervous; and by the influence of the ſenſual organs, chiefly of the uterus, which occaſions greater or leſs modifications. This temperament, the author remarks, is common to the greater number of women, in ſo far as they are deſtined to fulfil the purpoſes of nature; but the influence of the uterus having ceaſed, their temperament no longer poſſeſſes the ſame uniformity; they approach more nearly to men; and, which merits notice, often attain exceſſive longevity.

The uterus in females exerts ſo marked an influence, as long as the ſyſtem is ſubject to its empire, that

that the author does not heſitate to derive the diſeaſes which attack them excluſively from leſions, of more or leſs importance, of this viſcus. The action of the womb, he obſerves, is renewed at monthly periods; it acquires a ſtate of excitement or erection; a general movement takes place towards this organ, and a ſanguineous evacuation is the conſequence, known by the name of *menſtruation*. This natural evacuation is liable to various ſorts of derangement, the knowledge of which gives occaſion to the author to eſtabliſh one of the grand diviſions of his work, under the title of *leſions of the womb as an excreting organ, or natural emunctory*.

The uterine ſyſtem enjoys a conſiderable degree of vitality and energy; it exerts a vaſt influence over the whole machine, by means of the ſympathies which connect it with the other ſyſtems of organs: it is liable to contract a morbid ſenſibility, an extraordinary degree of action, or, on the other hand, to loſe them altogether. The diſorders originating in this ſource compoſe the ſecond *general order*, under the denomination of *leſions of the womb conſidered as a vital organ*.

The uterus is a viſcus which has a certain capacity, conſiſtence, and weight; it is ſuſpended by means of its ligaments and cellular tiſſue; is ſubject to be diſplaced, and to be forced through the ſexual or neighbouring openings, when its attachments are relaxed, or drawn in an unnatural direction. This forms the object of the third *general order*, viz. *leſions of the womb, conſidered as an organ contained in the abdominal cavity, and ſubject to diſplacement*.

Laſtly, the matrix is an organ eſpecially deſtined to the reception of the product of conception, to its developement, its nutrition for a conſiderable ſpace of time, and, laſtly, to its expulſion. The derangements of theſe important functions make the fourth *general order*, under the head of *leſions of the womb, as an organ*

organ deſtined to the generation and expulſion of the fœtus.

Of theſe four *general orders* are made a number of ſub-diviſions, under which are arranged the different *ſpecies*. Thus, under the firſt are included the diſeaſes relating to the menſtrual flux, as well thoſe depending on the ſtate of the organs themſelves, as on the quantity and condition of the ſecreted fluids.

Under the ſecond general head, where the womb is conſidered as a vital organ, are ranged the diſeaſes which originate in ſpaſm and atony; as hyſterical affections, nymphomania, and the like.

Under the third *order* are comprehended *prolapſus* of the womb, &c.

The laſt general head embraces the affections relating to generation, the diſeaſes of pregnancy, childbirth, and ſuckling, &c.

ART. XXIII. *Memoire Phyſiologique et Pratique ſur l'Aneuriſme, &c: A Phyſiological and Practical Memoir on Aneuriſm and the Ligature of Arteries. By* C. MAUNOIR, *of Geneva.* 8vo. 91 pages. Paris, 1802.

THE work before us conſiſts of two memoirs, the firſt of which explains the anatomy of arteries, their phyſiology, the formation of aneuriſmal tumours, and their treatment. In the ſecond, the author endeavours to confirm by facts the theory propounded in the former part.

Having deſcribed the uſual ſtructure of theſe parts, he proceeds to examine the phenomena which take place in the circulation immediately after birth, and eſpecially the change which the *ductus arterioſus* undergoes

dergoes at this period, and which from being an artery of conſiderable bulk becomes at length obliterated, appearing only as a ligament, with no other property of an artery but its elaſticity: from this fact, the author eſtabliſhes as a phyſiological theorem the following propoſition: "Whenever the blood finds in the artery A a ſufficient paſſage to any given point, more eaſily than through another artery B, the cavity of B diminiſhes, and at length becomes entirely obliterated."

In ſupport of this opinion, he cites obſervations to prove, that the aorta, the ſubclavian, the crural arteries, the venæ cavæ, &c. may become obliterated, without the perſons, in whom theſe accidents take place, being remarkably affected; which leads him to believe that there is no artery, acceſſible to the hand of a bold and ſkilful ſurgeon, that may not be tied, with a phyſical certainty of the anaſtomoſing branches ſufficing for the ſupport and nouriſhment of the parts ſituated below the ligature.

In regard to the treatment of aneuriſm, the author, with the generality of ſurgeons, gives the preference to the ligature, over compreſſion and all other means. In the application of the ligature he follows the methods recommended by Mr. *John Bell*, in his late treatiſe on the ſubject; whom, indeed, he ſo cloſely copies in his doctrines and practice, that it would be waſte of time to follow him, after the ample account we have ſo lately given of this work.

ART. XXIV. *A Memoir on the Anatomy of Vegetables; read to the Claſs of Sciences of the National Inſtitute. By Cit.* MIRBEL.

VEGETABLES in general have too much relation in the mode of their developement not to lead to

to the idea, that in their organization they poſſeſs a great ſimilitude to each other. This reflection naturally enough determined the author to confine his firſt remarks to a ſingle ſpecies; and he choſe the *Elder*, as of a more open tiſſue, and eaſier of obſervation than moſt other vegetables. He appears to have taken conſiderable pains in the proſecution of his inquiries, in order to aſcertain the ſtructure of the different organs of this plant. For this purpoſe he employed five or ſix microſcopes, of different powers, and verified his obſervations on a variety of plants; confirming or rectifying them occaſionally by the aid of his ſcientific acquaintance.

M. *Mirbel* firſt gives a deſcription of what he terms the elementary organs, becauſe, in reality, all the other organs are compounded of theſe. In the firſt chapter he treats of the parts which are diſtinguiſhable by the naked eye.

Plants in general are compoſed, as every one knows, of ſoft and hard parts. In truth, ſome, as the champignon and the fuci, appear to be formed entirely of a ſoft homogeneous ſubſtance; but this claſs is far from numerous.

The ſtalk of the more perfect plants preſents on its ſurface a ſoft coloured ſubſtance, more or leſs thick, the *bark*. It adheres ſtrongly to the ſubjacent parts, in a great number of the monocotyledon order of plants, and ſometimes is even ſo intimately blended and confounded therewith, as to make it impoſſible to diſtinguiſh them; it might in ſuch caſes be even ſaid that there was no bark. This is obſervable in the *palms*, the *graſſes*, &c. But in the dicotyledons, and ſome of the monocotyledons, the bark is very diſtinct from the reſt of the tiſſue, and forms an external layer that admits of being eaſily detached.

Beneath the bark is found the *wood*, more compact, harder, and more intimately united in its ſubſtance, and which ſeems to be formed of longitudinal fibres

ſtrongly cemented together. In the monocotyledons that have no *bark*, the wood is found immediately beneath the *epidermis*, which is a fine and tranſparent membrane, conſtituting the outermoſt covering of all vegetables.

The wood, as was obſerved by the learned *Desfontaines*, in his excellent memoir on the comparative anatomy of vegetables, is diſtributed longitudinally in the ſtems and branches of the monocotyledons, in delicate fibres; theſe fibres are often parallel, and ſometimes converge towards each other: they are united together, one and one, two and two, or divide and ramify in fibres ſtill more fine and delicate. All theſe fibres are ſurrounded by a ſoft, elaſtic, ſpongy ſubſtance, that is eaſily torn, commonly of a whitiſh hue, to which the name of *medulla* has been given, but which the author deſignates by the term *parenchyma*, to diſtinguiſh it from the medulla of the dicotyledon plants. The wood of theſe laſt, conſtantly ſituated beneath the bark, is not divided into diſtinct fibres, but forms commonly a cylinder, in the centre of which is placed the medulla, as in a ſheath. Nevertheleſs, ſome of the plants evidently provided with two cotyledons preſent ligneous fibres ſimilar to thoſe of the monocotyledons, traverſing the medullary canal throughout its length; but theſe are merely exceptions, and do not deſtroy the general rule.

In the trees or ſhrubs with two cotyledons, we obſerve almoſt always diſtinct lines of wood proceeding from the medulla, traverſing the wooden cylinder, and terminating at the bark. Theſe are viſible on making a tranſverſe ſection of the trunk, ſtem, and branches, like the horary lines of a dial. Theſe are known by the name of *medullary rays* (radii). They are rarely to be obſerved in the ſtems of the dicotyledon herbs, and do not exiſt at all in the monocotyledons, either herbaceous or ligneous.

In

In the leaves, flowers, pericarps, &c. we find, in the ſame manner, parts more or leſs ſoft, and hard, and which reſemble in ſubſtance the bark, medulla, and wood.

Such are the different parts which vegetables preſent on a ſimple inſpection. The author next examines the elementary organs that enter into their compoſition.

In the ſecond chapter the membranous tiſſue is treated of. Vegetables are formed of a membranous tiſſue, which varies in its form and conſiſtence not only in the different ſpecies, but even in the ſame individual. 'I ſhall not enquire,' the author obſerves, 'if the membranes be compoſed of organic fibres, arranged ſide by ſide, and united by gluten, as ſome authors pretend. This ſuppoſition is neither ſuſceptible of ſtrict demonſtration, nor of formal refutation. It is one of thoſe ſyſtems which ſerve to amuſe the mind in its unavailing reſearches. I ſhall content myſelf with remarking, that, whatever was my perſeverance, I have never obſerved true fibres in vegetables: the filaments to which this name has been given are only membranes detached and torn in longitudinal ſlips: ſuch were the delicate filaments which *Duhamel* ſeparated from a ſection of wood which he obſerved in the microſcope.

'The membranous tiſſue, though continuous in all its parts, forms two ſpecies of organs; the *cellular* tiſſue, and the *tubular* tiſſue.

'The *cellular tiſſue* preſents to the obſerver a ſeries of membranous cells, which appear at firſt view to have no communication with each other. They are by no means thoſe ſmall cavities or utriculi which moſt authors deſcribe, but are formed of the membrane folded or doubled in ſuch a way as to form vacant ſpaces contiguous to each other. In places where thoſe cells are ſubject to no extraneous preſſure, they are all equally dilated; their tranverſe and longitudinal ſections exhibit an hexagonal figure, ſimilar to the alveoli of the

honey-comb: each ſide of theſe geometrical figures is common to two cells, and the whole is of an admirable regularity; but when an external force compreſſes the tiſſue, the hexagonal figure is deſtroyed, and parallelograms, variouſly lengthened out, formed in its ſtead. The membranous ſides of the cells are extremely thin and colourleſs; they are tranſparent as glaſs; their organization is ſo delicate, as to be inviſible in the beſt microſcopes. They are commonly perforated by numerous minute pores, in diameter leſs, certainly, than the 300th part of a line: theſe pores are bordered by ſmall glandular inequalities, which intercept, and ſtrongly refract, the rays of light when thrown on them. The cellular tiſſue is ſpongy, elaſtic, and without conſiſtence: plunged in water it undergoes alteration, and in a ſhort time is deſtroyed; it is then reduced to a ſpecies of mucilage. The pores ſerve to eſtabliſh a communication of the cells with one another, and allow of the tranſmiſſion of the juices through them. This tranſmiſſion, however, is purely paſſive, and not the reſult of any active power in the parts themſelves.

'I have ſaid that the membranes are tranſparent and colourleſs: this is really the caſe when no foreign matter is preſent; but the tranſparency is often deſtroyed by the preſence of colouring ſubſtances. This tiſſue exiſts in all vegetables, but not in equal proportion. The *fungi* (champignons) and the *fuci* appear to me to be wholly compoſed of it. The bark of the monocotyledons and of the dicotyledons is almoſt entirely formed of it, where it is commonly ſomewhat compreſſed between the epidermis and the wood: it is filled with the reſinous juices, which are commonly of a greeniſh colour, but ſometimes red, or yellow, according to the kind of vegetable: this occaſions different tints to be given to the epidermis, which is nothing more than the external layer of the firſt rank of cells, as the illuſtrious *Malpighi* ſuppoſes.

The

The *medulla*, in all plants, is compoſed of hexagonal cells. In herbaceous plants, and eſpecially in ſuch as are very ſucculent, theſe cells are often filled with juices that are more or leſs coloured. In the more woody plants, that are naturally drier, they are, on the contrary, almoſt always empty and tranſparent.

'The *cellular tiſſue* is fleſhy and ſucculent in the bulbous roots; in the cotyledons it is hard and brittle; and in the albumen of grain, dry and pulverulent. The parenchyma of the leaves, the bractes, the ſtipules, and the calices, is formed of cells filled with a juice almoſt always of a green colour. The rich corols, which diſplay ſuch elegance of form and brilliancy of colour, but ſo momentary in duration, are likewiſe merely thin laminæ of the cellular ſubſtance: the juices which ſwell the tranſparent cells of which they are formed give them thoſe colours that ſometimes glide into each other by almoſt imperceptible ſhades; whilſt, at others, the tints are ſo oppoſed, as to give freſh brilliancy by their contraſt. Here the cellular tiſſue is ſo delicate, that the ſlighteſt touch ſuffices to change and tarniſh it; the leaſt preſſure reduces it to the ſtate of mucilage: it ſeems to be only the momentary product of air and water.

'This tiſſue is obſervable alſo in the ſtamina and piſtils. The pollen, that fine duſt which contains in its boſom the ſubtle fluid neceſſary to fecundation, appears itſelf but a maſs of minute ſacs, formed of cellular tiſſue; laſtly, it is this ſame tiſſue which dilates itſelf to produce the ſucculent fruits.

'The cells are more abundant in proportion in herbs than in trees, and in the young ſhoots than in the old wood. The embryon is almoſt wholly compoſed of the cellular tiſſue. The medullary rays, which extend from the centre to the circumference, in the trunk and branches of the trees with two cotyledons, conſiſt likewiſe merely of a thin layer of cells.

Chap. 5. *Of the tubular tiſſue.* There are two ſorts of tubes, large and ſmall.

The large tubes are not at firſt, as might be imagined, membranous canals, ſeparate and diſtinct from the tiſſue; they are openings taking place in the tiſſue itſelf, and are formed only by vacant ſpaces in the membranes. Such is the extreme ſimplicity of the organization of vegetables, that all the differences obſervable in them are confined almoſt ſolely to certain modifications of the cellular tiſſue. But the ſides of thoſe large tubes, continually moiſtened by the fluids which percolate throughout the vegetable, acquire by little and little more conſiſtence, and ſeparate themſelves from the reſt of the tiſſue, when their ſolidity ſurpaſſes that of the ſurrounding membranes. I have never been able to perceive thoſe large tubes in the fungi, lichens, or fuci, even with the aid of a microſcope; but it is ſufficient to have a clear ſight in order to diſtinguiſh the opening of theſe canals, on a tranſverſe ſection of the ſtem, branches, and roots, of many of the monocotyledon and dicotyledon tribes. In the former they are always found in the centre of the woody fibres, and ſometimes, even, they compoſe the major part of theſe; in the ſecond they are often ſeen diſtributed irregularly in the wood: ſometimes alſo they form groups, placed regularly enough at certain diſtances, or are ranged in concentric zones; they are particularly numerous around the medullary canal. We find them equally in the bark.

'If we trace them along their courſe, we find them originating in the root, traverſing the neck, extending along the trunk, and riſing parallel to each other; afterwards uniting, ſeparating, and turning aſide from their vertical courſe, to penetrate the bud that forms itſelf on the ſurface of the bark; elongating with this, and diſtributing themſelves throughout, in all its ramifications; paſſing from the branch into the woody filaments that compoſe the petiole or foot ſtalk, and

ſpreading

ſpreading themſelves over the leaf, as arteries and veins are diſtributed in the animal body. We may obſerve them, alſo, in the perianth, the filaments of the ſtamens, the piſtils, and in the woody fibres which traverſe the pulp of the fruit. Scarcely is the embryon formed, when they are perceived. In this infancy of the vegetable they are not concealed by the wood, which does not as yet exiſt: the ſubſtance which is deſtined to produce it is then in a ſtate of fluidity, which permits the obſerver to examine the parts it contains. This is not the place to ſpeak of the vegetable chyle produced from the fluids elaborated in the veſſels of the plant; this will be conſidered hereafter. The large tubes form ſometimes medullary radii, as I have obſerved in the plant *horſe-tail (prele)*: this, however, I believe, is ſeldom the caſe.

'There are four ſpecies of the large tubes; the ſimple, the porous, the falſe tracheæ, and the real tracheæ. Theſe are all modifications of one and the ſame organ.

'1ſt. The *ſimple tubes.* The ſides of theſe tubes are quite entire, neither pores nor clefts being obſervable in them; they contain commonly reſinous or oily juices, known under the denomination of *ſucci proprii*, or proper juices. Theſe tubes are very remarkable in green trees, in the euphorbia, the *periploca*, and in general in all the plants the juices of which are thick: they are more numerous and more viſible in the bark than in any other part.

'2d. *The porous tubes.* The ſides of theſe are perforated with minute pores, ſimilar to thoſe I ſpoke of in the article of the *cellular tiſſue*; with this difference, that theſe pores are much more numerous, and that, inſtead of being ſcattered at random, as it were, and without order, as often happens in the cells, they are diſtributed in regular and parallel ſeries around the tubes. Theſe tubes do not ſeem to be ſo particularly deſtined as the former to contain the reſinous or oily

juices: they are found in conſiderable quantity in the hard woods, as the oak.

'3. *The falſe tracheæ.* Theſe tubes are interſected tranſverſely with parallel openings, which would lead one to believe, if we truſted to this appearance, that they are formed of rings placed one above the other, or of filaments turned in a ſpiral form; but we can neither unravel them, nor ſeparate them into diſtinct rings; and, beſides, with a little attention, we may diſcover the continuity of the membrane, and conſequently the place where the clefts terminate. They are, therefore, porous tubes, but the pores of which are much larger than in the preceding. I ought alſo to obſerve, that the border of the clefts is furniſhed with a prominence ſimilar to that which ſurrounds the ſmall pores. Theſe tubes are deſtined to the ſame uſes as the porous tubes, but we moſtly find them in the ſofter and leſſer compact woods, and often even in the herbaceous plants; I have obſerved them in a great number of the monocotyledons. The centre of the *lycopodii* preſents a cylinder, thick, and compoſed in great part of veſſels of this kind. The ferns, alſo, contain many in their woody filaments. The dicotyledons are no leſs provided with them: they are very numerous in the vine, the wood of which is ſoft and porous.

'4. *The tracheæ*, or *true air veſſels*, as they are termed. Ignorance has beſtowed on theſe tubes a denomination which uſe has ſanctioned, but which nevertheleſs is ill founded. The *tracheæ* of plants reſemble in form the tracheæ of inſects, and it has been hence haſtily concluded, that they were, in like manner, the organ of reſpiration. The vegetable trachea is a tube formed by a filament, twiſted ſpirally from right to left. This thread, or filament, is opaque, ſhining, ſilver-like, and thick. Its tranſverſe ſection has

has ſometimes preſented a flat plate, or an ellipſis, and ſometimes even two filaments united together by an intermediate membrane; but I have never been able to perceive the orifice of a tube, as many authors have aſſerted. The ſurface is ſometimes ſmooth and level, ſometimes unequal, and ſometimes porous. The ſpires of the tracheæ are often ſo cloſe to each other, that, when their diſpoſition has not been diſturbed by rudely breaking or cutting the parts which contain them, they appear to be continuous ſtriated tubes. *Malpighi* and *Reichel* aſſert, that they have remarked contractions along the length of the tracheæ, and at firſt I thought alſo I could perceive them; but I found afterwards it was nothing more than an optical illuſion.

'Theſe tubes exiſt in great number in the herbaceous monocotyledons and dicotyledons, eſpecially in the aquatic ſpecies, the tiſſue of which is more tender; they occupy the center of the ligneous filaments in the monocotyledons; we obſerve them in trees with two cotyledons, ſurrounding the medulla; oftentimes they are intermixed with it, and confounded with the falſe tracheæ. I have never ſeen them in the hard parts of vegetables, unleſs theſe parts have been for a long time in a ſoft ſtate, ſo as to have permitted the tracheæ to develope themſelves; this takes place in the branches and ſtalks, the medulla of which has diſappeared: theſe tubes were formed when the medullary ſubſtance exiſted. The tracheæ are not found along the bark, but they penetrate the foot ſtalks and leaves as well as the falſe tracheæ; they perform every where the ſame functions as theſe, and do not contain thick juices, unleſs in plants, where they are very abundant, as in certain of the liliaceous tribe. Every one knows, that, in order to ſee theſe organs with the naked eye, it is neceſſary to take a young and tender branch; to twiſt it aſunder in a gentle manner, that the tracheæ may be unravelled without breaking;

breaking; then, on expoſing to the light the two parts of the branch thus divided, one may diſtinguiſh the filaments, half untwiſted, paſſing from one to the other part, and the ſpires approaching or removing from each other, in proportion as the parts are ſeparated or brought nearer together: they untwiſt and contract in like manner in the torn leaves. However, the leaves of the *butomus umbellatus* exhibit a different phenomenon: the tracheæ, which in this plant are exceedingly multiplied, when once unravelled, do not again contract themſelves.

'To return to the large tubes generally: the diviſion into ſimple and porous tubes, falſe and real tracheæ, is by no means rigorous. In eſtabliſhing it, I have not pretended to aſſign the immutable laws of Nature; I have had occaſion to obſerve frequent deviations from it. Thus, the *butomus umbellatus* preſents, in the ſame tube, the pores of the porous tubes, the clefts of the falſe tracheæ, and the ſpires of the two; ſo that one ſingle tube comprehends three of the modifications which I have deſcribed: theſe tubes I have called *mixed* in my tables. Other vegetables preſent ſomething analogous, or at leaſt we find in them indifferently, in ſimilar ſituations, one of the four varieties of the large tubes. It is not unuſual to ſee all theſe tubes ſtrictly united one to the other, and forming one ſimple tiſſue. In ſhort, we may conjecture, with ſome appearance of reaſon, that, in many caſes, the tracheæ only unravel themſelves becauſe we tear through the membranes which unite the ſpirals together. We may conclude, therefore, that theſe differences, which appear at firſt ſo important, are nothing more than ſlight ſhades in the vegetable œconomy. But the large tubes, conſidered in a more general way, preſent themſelves to the mind as the creative organs: their numerous ramifications, diſtributed in all parts of the vegetable, carry the vivifying juices;

juices; by them the ſtem acquires greater vigour, the bud ſhoots, pierces the bark, and prolongs itſelf in the form of a branch; the leaf developes itſelf, the flower expands, the fruit ſwells and ripens, and the embryon, concealed in its boſom, receives its firſt nutritive juices.

'*The ſmall tubes.* Theſe are compoſed of cells united to each other, ſimilar to thoſe which compoſe the cellular tiſſue; but, in the cellular tiſſue, the cells are of nearly equal diameter in all directions; whilſt, in the former, the cells are lengthened out, forming real tubes, the extremities of which are cloſed: moreover, the ſides are leſs tranſparent, and the membranes which form them are of greater conſiſtence: they are often perforated by an immenſe number of pores. This tiſſue is thick, ſolid, and tenacious. It is commonly cut acroſs with difficulty, but it offers much leſs reſiſtance longitudinally, and often ſeparates with little effort into filaments more or leſs delicate, to which the name of fibres has been improperly given. The ſolidity of the vegetable depends eſpecially on the quantity and denſity of this tiſſue: it contains, according to the different ſpecies, ſometimes thick and coloured juices; ſometimes, and more commonly, thoſe which are limpid and colourleſs. In the fir-tree, it is full of a reſinous juice; in the vine, eſpecially at the time when the ſap riſes, it abounds with an aqueous liquor.

'The embryon, whilſt enveloped in its coverings, has few or no ſmall tubes; all its parts are ſoft, and nearly mucilaginous: this tiſſue is only found in the expanded plant. We may obſerve it at the center or at the circumference of the ramifications of certain of the lichens, and in the ſtems of the moſſes; in the monocotyledons this tiſſue is diſtributed around the large tubes, and compoſe ligneous filaments; in the dicotyledons, ſituated around the medulla, and the large tubes which ſurround it,

it, it forms woody layers. The ſmall and large tubes are commonly united together: on the preſence of theſe laſt depends the exiſtence of the others. The link that unites them is that of effect to cauſe. However, we ſometimes find the large tubes without the ſmall, and *vice verſa;* but it muſt be remembered, that the large are the creative organs, and that conſequently their exiſtence is independent of that of the others. And it muſt be conſidered alſo, that, in many vegetables, a period arrives when the large tubes become filled by that very tiſſue to which they gave birth.

'The prominent lines obſerved on the ſurface of vegetables are bundles of minute tubes. This tiſſue may be obſerved likewiſe in the moſt delicate nerves of the leaves and petals: it penetrates even to the ſtamens and piſtils, and reaches the extremity of the ſtigmas; but in thoſe delicate organs it loſes its rigidity, and becomes merely an elongated cellular tiſſue.

'Of the *lacunæ*. Nature, which uſually effects her operations without violence, and conducts organized beings, by inſenſible gradations, from non-entity to life, and from life to death, ſeems here to deviate from her ordinary march: ſhe deſtroys in order to create; and it is from the annihilation of organs that ſhe produces a new organic ſyſtem. The lacunæ are regular and ſymmetrical cavities formed in the interior of vegetables by the rupture of the membranes.

'The lacunæ commonly exiſt only in plants of a lax texture. They are very numerous in the greater part of aquatic plants: however, we find them ſometimes in vigorous trees with hard wood; but in all caſes they are only formed by the deſtruction of the cellular ſubſtance, the weakeſt part of the membranous tiſſue. If theſe lacunæ are not more commonly met with in the monocotyledon plants, it is becauſe, in general,

general, theſe plants poſſeſs leſs vigour, and becauſe they have a leſs perfect organization, or, if I may ſo venture to expreſs myſelf, leſs vegetative power. It is a phenomenon deſerving all the attention of phyſiologiſts, that thoſe ruptures of membranes, far from injuring the plant, are only means of augmenting its powers, and of more effectually concentrating them. Plants of a looſe texture, and particularly thoſe which are immerſed in water, receive juices in abundance; but they are unable to elaborate them, becauſe their organs are not ſufficiently vigorous in reſpect of the bulk of the plants, which are more voluminous than ſtrong. But if, by internal rupture, the organs that are become uſeleſs are deſtroyed, and the uſeful ones preſerved; in a word, if one part of the organization be ſacrificed to another, the part which remains, receiving alone the whole nutritive matters, will acquire greater ſolidity, and the plant grow with new vigour; for its powers will not have been diminiſhed, whilſt the reſiſtances will be leſs.

There are no lacunæ obſervable in the embryo, becauſe thoſe ruptures are a real diſorganization, which cannot take place in beings that are juſt beginning to live. It is only after a time that they are formed. They ſhew themſelves in the foot ſtalks of the ferns, in the ſtalks of the *potamogeton*, and in a multitude of other vegetables, as longitudinal tubes placed here and there in the cellular tiſſue. In the plant *horſe-tail (prele)* they affect an extreme regularity of diſpoſition; one, larger than the reſt, forms a tube in the centre of the ſtem, around which are placed other very minute lacunæ circularly diſpoſed; and others larger than theſe, and nearer the circumference, alternate with them. The lacunæ of the leaves of the monocotyledons are ſeparated by frequent partitions, which are merely condenſations of the cellular tiſſue at certain diſtances cloſing the tubes by a ſort of membranous diaphragms. This organization,

or

or rather this *diſ*organization, appears in the tranſparent texture of the *typha*, and of a multitude of other monocotyledons, with ſword-like leaves (*feuilles en epée*). The ſame phenomenon may be remarked in the tiſſue of the ſheath which compoſes the ſtem of the *banana*.

'The *reſtio* has longitudinal lacunæ, and likewiſe open tranſverſe ones in the ſubſtance of the bark: this laſt ſpecies of lacunæ, it would ſeem, does not frequently occur in vegetables.

'One would ſuppoſe that the large tubes of plants were always at firſt lacunæ; and that the interior cavities, where a new tiſſue is developed that augments at once the volume and denſity of the plant, were in like manner merely lacunæ.'

(To be continued.)

MISCELLA-

MISCELLANEOUS.

§ 4. *Royal College of Surgeons.*

THE *College of Surgeons* have at length publiſhed a code of laws, for the regulation of the members of that body, under the title of "Bye Laws, Ordinances, Rules, and Conſtitutions, made and ordain-"ed by the Maſter, Governor, and Court of Aſſiſtants, of the Royal "College of Surgeons in London, at a Court of Aſſiſtants of the ſaid "College, holden at the College, on the 8th Day of January, 1802."

To the well wiſhers of the art of ſurgery it will give pleaſure to find, that public utility has been in ſome degree conſulted, and ſome proviſion made for the encouragement and promotion of ſcience. It is to be hoped that the laws in this reſpect will not, as under the old corporation, be ſuffered to become little more than a dead letter; but that a degree of zeal will be ſhewn for the further improvement of this important branch of medicine, the only juſt end of public inſtitutions; and which it is the bounden duty of thoſe, to whom the management is immediately entruſted, to attend to, to the utmoſt of their abilities.

The whole management and authority of the College is veſted in a *maſter*, two *governors*, and a *court of aſſiſtants*. The members at large, like the *permiſſi* of the ſiſter eſtabliſhment in Warwick Lane, "have nothing to do with the laws, but to obey them," and to contribute their quota to the funds of the inſtitution.

The mode of admiſſion is juſt as it was under the former corporation. The diploma for practiſing within ſeven miles of the city of London coſts thirty guineas, and beyond thoſe limits, fifteen. The members holding the former, pay, beſides, an annual contribution of twenty ſhillings. On reſignation, the ſum of twenty guineas is to be paid, and ten beyond the limits above-mentioned.

The

The term of apprenticeſhip, which under the old eſtabliſhment extended to ſeven years, is at preſent reduced to ſix.

Honorary members are admiſſible by the *court of aſſiſtants.*

An honorary medal, too, is to be given on ſuch occaſions, and to ſuch perſons, as the ſaid court ſhall determine.

The fees for examination (without a diploma) are the ſame as heretofore; viz. for a principal ſurgeon in any ſervice, three guineas; and for a mate, or aſſiſtant, one guinea.

There is to be a library and a muſeum; the latter to conſiſt of all preparations and things which may be explanatory of the animal œconomy, of diſeaſes, and of the principles of ſurgery; of drawings, engravings, chirurgical inſtruments, &c. This will be enriched with the ſplendid and unequalled collection of the late Mr. John Hunter, purchaſed by government of his executors, and preſented to the College.

There are to be at leaſt twenty-four lectures delivered annually, to be called "The Muſæum Lectures," the ſubjects of which will be illuſtrated by the preparations in the muſæum, according to the conditions agreed upon by the College upon accepting the Hunterian collection.

There are alſo lectures in anatomy to be delivered annually, to be called "Arris and Gale's Lectures," according to the intention of Alderman Arris and Mr. Gale, the donors of funds for that purpoſe. The regulation of theſe, and of the muſeum, is by a board of *curators*, conſiſting of ſeven members, who are to receive all communications concerning ſubjects of anatomy or ſurgery that may be offered. The diſpoſal of theſe reſts with the court of aſſiſtants. It is to be hoped that they will, from time to time, be given to the public in the form of memoirs, or otherwiſe, as may be judged expedient.

The above are all the points that concern the members at large. The remaining laws relate to what may be termed the domeſtic affairs of the College; as the fees of examiners, court of aſſiſtants, ſervants of the inſtitution, &c. &c.

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§ 5. *Vaccine Inoculation in Wales.*

The following account has been communicated, in a letter dated Swanſea, Auguſt 10, 1802, to Dr. Pearſon, from the learned Dr. W. Turton; being an extract from a printed paper diſtributed in Swanſea.

"Having

"Having very nearly loſt my ſon in the ſmall pox from inoculation, I was naturally uneaſy about the event of it in my daughter, and went to London, anxious to make the moſt minute enquiries concerning the ſucceſs of the cow pock, then lately eſtabliſhed. I examined the different hoſpitals and inſtitutions where it was practiſed, carefully watched the progreſs of the diſeaſe, and attended Dr. Pearſon to the villages near Oatlands, where upwards of 300 people, who had never had the ſmall pox, were inoculated for the cow pock by the recommendation of the Duchefs of York: all of theſe were again inoculated for the ſmall pox without effect. Every ſcruple was therefore removed, and I deſired Dr. Pearſon to ſend, in a letter, ſome of his genuine matter on thread, that I might inoculate both my own children, for the ſatisfaction of all who might wiſh to have evidence of its effects; and (June 29, 1799) in the preſence of Mr. J. Collins, Mr. Braine, and the late apprentice of Mr. Sylveſter, I inoculated them both. The boy, who before had had the ſmall pox, did not take it; but the girl, who never had either, went well through it without any previous preparation, without any alteration in her food or manner of living, and with only about two hours illneſs. She has ſince been inoculated for the ſmall pox, and expoſed in every manner to its infection; but it is certain ſhe cannot take it.

"From her arm I inoculated ſeveral children, among whom were two of Mr. Ayrton's; each of which I directed might ſleep with one who never had been inoculated for either. The two that were inoculated went well through it, and the two that ſlept with them did not catch it: by this it appears that it is not infectious, and that any part of a family may have it without communicating it to others.

"An opinion has been delivered about the town, that it is poſſible for thoſe who have had the cow pock ſtill to have the ſmall pox. This I may ſafely contradict, as it is an aſſertion made without proof, or without enquiry after proof; for, notwithſtanding every eye has been open to diſcover whatever might happen, and every attempt made to aſcertain it, there is not upon record one ſingle inſtance.

"Had thoſe who have lately been cut off by the ſmall pox in Swanſea been inoculated for the cow pock, it is more than probable they would all have been ſaved; and in conſequence of its increaſing fatality I was applied to by many, who truſted my aſſertions, to procure genuine matter from London. I have juſt received ſome from Dr. Pearſon, and have inoculated the children of Capt. Nichols,

on the Burrows, and the two others of Mr. Ayrton, who may be ſeen by any one deſirous of further information. From them I am willing to inoculate ſuch as are fully convinced of its utility, and pledge myſelf, under Providence, for their ſafety.

" Obſtructions from medical men will ſometimes preſent themſelves, through prejudice, or fear, or intereſt. Prejudice I conſider to be a determination to abide by old opinions, whether right or wrong; and with men who perſevere in detected error, it is uſeleſs to reaſon, and fooliſh to contend. Fear will operate with thoſe who are apprehenſive of introducing and recommending what they do not clearly underſtand, and about which they are too idle to make enquiries. And I am afraid a few will be found, who, regarding their annual harveſt from the ſmall pox as likely to be diminiſhed and totally loſt, will honeſtly endeavour to extinguiſh the light that would conduct their fellow-beings to ſafety.

" *Fiſher Street, March* 19, 1800.

" PS. After a lapſe of three years, the author of theſe obſervations cannot but congratulate himſelf and the public on the unequivocal ſucceſs which has attended his introducing the cow pock into this country. Upwards of a thouſand perſons in the various towns of South Wales have been inoculated, without the ſmalleſt accident or interruption to their health; and the uſual ravages from the ſmall pox are manifeſtly diminiſhing every year.

" I ſhould have mentioned, that my eldeſt daughter, above alluded to, was *chriſtened* VACCANIA; *an unalterable record of the introduction of the cow pock, and by whom, being the firſt Cambrian ever ſo inoculated.*"

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§ 6.

The celebrated M. *Parmentier* and M. *Huzzard*, both members of the French *National Inſtitute*, are now in London, viſiting the different public inſtitutions. The former is apparently near 70 years of age, and has been known in the annals of philoſophy for above 30 years, eſpecially for his reſearches into the nutritive parts of vegetables, and particularly of potatoes. The latter has been very actively engaged in the experiments on the cow pock in France, and has

has made more experiments of inoculating cows with the matter of *greaſe*, in order to produce in them the vaccine diſeaſe, than all other perſons united. Of theſe, the reſult will be communicated to the public. At preſent it is ſufficient to ſtate, that *they all failed* in accompliſhing the object.

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§ 7. *On the Inoculation of Cattle in Denmark.*

Since the practice of vaccine inoculation has been introduced, a number of facts and obſervations, which previouſly were unintereſting and unnoticed, ought now to meet with due conſideration: accordingly, as relating to the new ſubject, the following account of the inoculation of cattle in Denmark deſerves a place in our journal. It is extracted from a work of Dr. Heinze, publiſhed in 1786.

" The preſent bailiff is famous for the inoculation of the diſtemper of cattle; he has eſtabliſhed an infirmary at his farm, where any one who wiſhes may have his cattle inoculated by paying two rix-dollars (6s. 8d.) per head. When a beaſt is to be inoculated, the hair is ſhaved off for about two inches ſquare, and near the back bone. An inciſion is then made with a ſharp knife; and a thread, which has been previouſly drawn through the ſlime running from the noſe of a ſick beaſt, is laid on the wound: on the thread is laid a plaſter, to ſecure it in its place. During the inoculated diſeaſe the beaſt muſt live on ſtraw only.

" M. Holſtein, the inoculiſt, has practiſed with ſuch ſucceſs, that more than two thirds have recovered under inoculation for the diſtemper among cattle; except in cows that are with calf, which muſt not be inoculated. Some years ago the King had trials of inoculation made in ſeveral villages, which were attended with greater ſucceſs, but more expence to the King's pocket; for though not one third part of the inoculated cattle died, the King had conſiderable outgoings where the proprietor of the beaſt had great advantages; becauſe the King agreed to pay for all the inoculated cattle which died in any place above one third, whilſt they inoculated cows with calf, of which each peaſant had only one or two; the King deſiring no indemnification from thoſe peaſants who did not loſe one out of ten or more inoculated beaſts."

In Holland, according to *Camper*, the beſt way is found to be to inoculate calves, as much fewer die of theſe than of adults.

It is fully aſcertained that a beaſt can have the diſtemper (the *peſtis bovilla*) but once.

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§ 8. *Singular Mode of Bathing among the Finlanders. (From* Acerbi's *Travels to the North Cape.)*

'Another particular that appeared very ſingular among the cuſtoms of the Fins was their baths, and manner of bathing. Almoſt all the Finniſh peaſants have a ſmall houſe built on purpoſe for a bath: it conſiſts of only one ſmall chamber, in the innermoſt part of which are placed a number of ſtones, which are heated by fire till they become red. On theſe ſtones, thus heated, water is thrown, until the company within be involved in a thick cloud of vapour. In this innermoſt part the chamber is formed into two ſtories, for the accommodation of a greater number of perſons within that ſmall compaſs; and it being the nature of heat to aſcend, the ſecond ſtory is, of courſe, the hotteſt. Men and women uſe the bath promiſcuouſly, without any concealment of dreſs, or being in the leaſt influenced by any emotions of attachment. If, however, a ſtranger open the door, and come on the bathers by ſurprize, the women are not a little ſtartled at his appearance; for, beſides his perſon, he introduces along with him, by opening the door, a great quantity of light, which diſcovers at once to the view their ſituations as well as forms. Without ſuch an accident they remain, if not in total darkneſs, yet in great obſcurity, as there is no other window beſides a ſmall hole, nor any light but what enters in from ſome chink in the roof of the houſe, or the crevices between the pieces of wood of which it is conſtructed. I often amuſed myſelf with ſurprizing the bathers in this manner, and I once or twice tried to go in and join the aſſembly; but the heat was ſo exceſſive, that I could not breathe; and in the ſpace of a minute, at moſt, I verily believe, muſt have been ſuffocated. I ſometimes ſtepped in for a moment, juſt to leave my thermometer in ſome proper place, and immediately went out again, where I would remain for a quarter of an hour or ten minutes, and then enter again, and fetch the inſtrument to aſcertain the degree of heat. My aſtoniſhment was ſo great, that I could ſcarcely believe my ſenſes, when I found that thoſe people remain together and amuſe themſelves for the ſpace of half an hour, and ſometimes a whole hour, in the ſame chamber,

chamber, heated to the 70th or 75th degree of Celſius. The thermometer, in contact with thoſe vapours, became ſometimes ſo hot, that I could ſcarcely hold it in my hands.

'The Finlanders, all the while they are in this hot bath, continue to rub themſelves, and laſh every part of their bodies with ſwitches formed of twigs of the birch tree. In ten minutes they become as red as raw fleſh, and have altogether a very frightful appearance. In the winter ſeaſon they frequently go out of the bath, naked as they are, to roll themſelves in the ſnow, when the cold is at twenty or even thirty degrees below zero.* They will ſometimes come out, ſtill naked, and converſe together, or with any one near them, in the open air. If travellers happen to paſs by while the peaſants of any hamlet, or little village, are in the bath, and their aſſiſtance is needed, they will leave the bath, and aſſiſt in yoking or unyoking, and fetching provender for the horſes, or in any thing elſe, without any ſort of covering whatever, while the paſſenger ſits ſhivering with cold, though wrapped up in a good ſound wolf's ſkin. There is nothing more wonderful than the extremities which man is capable of enduring through the power of habit.

'The Finniſh peaſants paſs thus inſtantaneouſly from an atmoſphere of ſeventy degrees of heat to one of thirty degrees of cold; a tranſition of a hundred degrees, which is the ſame thing as going out of boiling into freezing water! and what is more aſtoniſhing, without the leaſt inconvenience; while other people are very ſenſibly affected by a variation of but five degrees, and in danger of being afflicted with rheumatiſm from the moſt trifling wind that blows. Thoſe peaſants aſſure you, that, without the hot vapour baths, they could not ſuſtain as they do, during the whole day, their various labours. By the bath, they tell you, their ſtrength is recruited as much as by reſt and ſleep. The heat of the vapour mollifies to ſuch a degree their ſkin, that the men eaſily ſhave themſelves with wretched razors, and without ſoap. Had Shakſpear known of a people who could thus have pleaſure in ſuch quick tranſitions from exceſſive heat to the ſevereſt cold, his knowledge might have been increaſed, but his creative fancy could not have been aſſiſted:

> Oh! who can hold a fire in his hand,
> By thinking of the froſty Caucaſus?
> Or wallow naked in December's ſnow,
> By thinking on fantaſtic Summer's heat?

* 'I ſpeak always of the thermometer of a hundred degrees, by Celſius.'

§ 9. *Of the Effects of Galvaniſm on the Organ of Hearing.* Extract of a letter from M. *Pfaff*, profeſſor at *Kiel*, to Dr. *Friedlander*, at Paris.

" There is an inſtitution for the deaf and dumb at *Kiel*. I have employed, for three weeks paſt, the electric pile of *Volta*, as a remedy for deafneſs. It produces its effects but very ſlow; I have obſerved, however, that it actually does ſucceed. The letters which the deaf and dumb hear, ſerve, it may be ſaid, as a ſcale to determine the degree of their deafneſs. They hear the letter *a* ſooneſt; next *c*; and laſtly the *i*. They often change the *o* into *u (ou)*. One of them for ſeveral days heard *ou* as *u*: *r* is of all the conſonants that which they learn to diſtinguiſh the firſt. They ſoon come to hear *ss* and *ch*; but they are very ſlow in hearing the *l* and *s*. Similar phenomena were obſerved in ſeveral individuals at the ſame time.

" It ſeems, however, that the pile of *Volta* produces merely a momentary irritation on the nerves of hearing, during the time that it is employed; and that this irritation is followed by weakneſs or relaxation of the parts. The patients become as deaf as before on ceaſing to electrify them; for the effect is nothing elſe than what we produce by electricity. I propoſe to continue my experiments for eight weeks at leaſt," &c. *(Journ. de Phyſ. An.* x.)

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§ 10. *On the Magnetic Property of Bodies in general.*

Cit. *Coulomb* read lately, before the *National Inſtitute*, an account of ſome experiments which ſeem to ſhew that all bodies, without exception, are ſubject to the magnetic influence. In order to render this perceptible, it is only neceſſary, he remarks, to give the bodies ſubjected to the experiment the greateſt degree of mobility poſſible. This he effected by ſuſpending, by means of a ſingle fibre of ſilk, minute and ſlender portions of the body to be examined between two artificial magnets, placed in a ſtrait line, with their poles oppoſed to each other. He found, that whatever ſubſtance he ſuſpended in this way it always ranged itſelf, after a number of oſcillations, in the exact direction of the two magnets. He tried ſucceſſively thin laminæ of gold, ſilver, copper, lead, and tin; ſmall cylinders of glaſs, a piece of chalk, fragments of bone, and different ſpecies of wood; in all of them he obſerved a magnetic tendency. Theſe experiments, he thinks, demonſtrate that all the elements which enter into the compoſition of our globe obey the magnetic influence; and that the

re-union

re-union of theſe elements renders the earth one vaſt and ſimple magnet.

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§ 11. *Rupture of the Membranes in the early Stage of Pregnancy, without Abortion ſucceeding.*

A caſe has been communicated to us by Mr. *Hogben*, of *Berners Street*, which we imagine will be thought ſufficiently intereſting to merit notice, and the accuracy of which may be relied on. It is of a lady, who, when three or four months advanced in her pregnancy, ſuffered a rupture of the membranes, with a diſcharge of the liquor amnii, yet went the full time of geſtation.

'Mrs. P———, about 40 years of age, of middling ſtature, and active diſpoſition, had been ill ſeveral weeks with colds, inflamed glands about the neck and throat, cough, and loſs of appetite, which weakened her conſiderably. On the 10th day of November, 1801, being alarmed in the evening by the falling of an iron bar of a window immediately beneath where ſhe lay in bed, ſhe was ſeized with ſuch violent ſpaſmodic efforts as to occaſion the rupture of the membranes ſurrounding the child. The next morning, being deſired to attend, I was informed there had been a diſcharge of waters, accompanied with pain. On examining, the os internum appeared cloſed, but had deſcended, and the os externum was ſomewhat relaxed.

'The diſcharge and pain continued, but with ſhort intermiſſion, for a week; when both abated, and the motion of the child became almoſt imperceptible. The flow of waters was ſeveral times ſo copious as to run through ſixteen folds of blankets and the bed to the floor; by which the patient became ſo much reduced in ſize, as not to appear in a pregnant ſtate, although, before the accident, ſhe ſeemed much larger than uſual at that ſtage of geſtation.

'Nov. 20th (the 11th day) I examined again, and perceived the os uteri to be lower down, it nearly touching the os externum, but not open, or ſoft; the pains returning frequently, attended with a diſcharge of waters, and ſtill a bearing down at times, as if the womb was forcing from her (as ſhe expreſſed it). Being now exceedingly languid, and reduced in ſtrength, my patient and her friends were much alarmed, and begged of me to relieve her from her preſent deplorable ſtate, by aſſiſting the delivery of the child, which they conſidered to be neceſſary to ſave her life. My reply was, that I could not be juſtified in haſtening the delivery, for in ſo doing the child would be deſtroyed, and I could not anſwer for the ſafety of

the mother, in her preſent ſtate of health: I encouraged her by every means to have patience, and aſſured her all would terminate favourably in due time.

'Nov. 30. The pains and diſcharge have continued to return, at times, with different degrees of violence, and the child has been felt to move occaſionally. On examining to-day, I found the os internum ſoft, and a little open, but not enough to introduce the point of a finger: the neck of the uterus ſeemed diſtended quite to the mouth, and its contents reſting cloſe over it. The os externum continues very lax.

'Dec. 7th. Symptoms variable as before; the waters diſcharged are now rather thicker, and of a browniſh yellow colour: the child is ſtill perceived to move at times.

'16th. Has paſſed a very diſturbed night from pains and bearing down: it is ſuppoſed that two or three quarts of waters, together with a thickiſh diſcharge, came off in the courſe of the night; and ſince the membranes were firſt ruptured, it is calculated there could not have been leſs than five or ſix gallons of water diſcharged. They get vent chiefly in the night, when in an horizontal poſition: the child then coming in cloſer contact with the uterus, gives greater pain by its ſtruggles, and occaſions the uterus to contract, and conſequently diſcharges the waters. The rupture in the membranes may be high up, ſo that the waters cannot ſo eaſily get vent in a perpendicular poſition. There has not been any appearance of blood.

'31ſt. In good health and ſpirits; but, in conſequence of a fire taking place a few doors off on the preceding day, ſhe had an hyſteric fit, yet no ill effects followed. The diſcharge, as uſual, thickiſh and yellow: ſhe frequently feels the child, but with a kind of fluttering motion, only very different (ſhe obſerved) from what ſhe uſed to feel in her former pregnancies, when the water had not been diſcharged.

'Jan. 18th, 1802. Continues in pretty good health: the child is ſtronger, and gives more pain: the diſcharge as before, excepting ſome few red ſpots which ſhe obſerved this morning. She appears again much bigger, and felt ſo to herſelf.

'Feb. 6th. In good health; has walked about in the air, and rode in a coach; but complained of much pain when the child moved. The diſcharge now is much thicker, but yellowiſh.

'March 6th. Had a fall the other day, ſince which there has been a conſiderable diſcharge of waters, and the motion of the child is more painful.

'25th.

'25th. For ſeveral nights paſt pain came on like labour, about one o'clock, and continued the greateſt part of the night, attended with the yellow watery diſcharge. She has taken cold, and complains of ſore throat, &c.

'April 20th. Was taken about 11 o'clock laſt night with ſharp pains, returning regularly, and attended this morning with a diſcharge of mucus. Theſe pains increaſed till between 7 and 8 o'clock in the evening, when ſhe was delivered of a ſtrong, healthy, full-grown male child. The head preſented, the membranes preceded, and protruded quite to the os externum, when they ruptured with a pain. About the quantity of a teacup full of water was diſcharged: the head immediately followed, and, with a little aſſiſtance, the child was delivered. The lochia were in the uſual quantity. On examining the placenta and membranes, I could not diſcover any other aperture in the latter but that through which the child paſſed, in the moſt depending part, directly oppoſite to the placenta. In no one of her former labours had ſhe ſo good a time in getting about: ſhe was able to ſit up the ſecond day, and at the end of the 10th walked about the room. She ſuckles the child, and has great plenty of milk.

'I believe it is not common, at ſo early a period of geſtation as between the third and fourth months, for pregnancy to proceed long, after a rupture of the membranes. In this caſe, there being an unuſual quantity of the waters ſo early, there can be no doubt the waters muſt have accumulated from time to time: it ſeems alſo certain that the adheſion of the placenta to the fundus uteri muſt have been uncommonly firm, and the make and texture of the child ſingularly compact; but how it ſhould have ſurvived the almoſt conſtantly repeated contraction of the uterus for ſo long a time, one cannot eaſily comprehend. The yellowiſh diſcharge might be occaſioned by the contents of the child's bowels being preſſed out, from time to time, by the violent contraction of the uterus, and ſo tinging the waters, &c. Opium was adminiſtered in ſmall quantities and frequently, and no doubt aſſiſted greatly in quieting the pains and action of the uterus. Indeed, without it, I do not conceive the life of the child could have been preſerved. It may not be improper to remark, that the patient increaſed in ſize latterly, ſo as to be, at the end of the ninth month, about the ſame bulk as in her former pregnancies.'

§ 12.

§ 12. *Inſuſceptibility of Electrical Impreſſion.*

Letter from Cit. *Clos* to *J. C. Delametherie*, editor of the *Journal de Phyſique.*

" Having heard it ſaid, at *Sorèze*, that Madame N*** was not at all ſubject to electricity, my curioſity was excited by the ſingularity of the fact: I wiſhed to aſcertain its certainty, and the following is what I have poſitively learnt.

" About 18 or 20 years ago, this lady, enjoying in other reſpects a robuſt conſtitution, was obſerved to be entirely inſenſible to the effects of the electric fluid: in the experiments which were made at the *Cabinet de Phyſique*, ſhe ſubmitted, without reluctance, to the moſt powerful ſhocks, and communicated them to other perſons, without herſelf feeling them. At this period ſhe had a ſiſter nearly in the ſame ſituation. It is not known whether her other relations preſented the ſame ſingularity. For ſome years paſt this lady has become valetudinary, and at times is attacked with nervous affections; at preſent ſhe is ſubject to the influence of electricity, ſo, however, as to feel its effects but very ſlightly. She is as lively, ſpirited, and ſenſible, as the generality of other perſons in whom the nervous ſyſtem is very mobile.

" Is Madame N*** ſafe from a ſtroke of lightning? I ſhould eaſily believe it, if the accidents which this terrible meteor occaſions did not moſt frequently proceed from the *commotion* which its exploſion impreſſes on the ſurrounding bodies, as well as from the diſengagement of ſuffocating ſulphureous vapours.

" However this may be, as my memory does not furniſh me with any analogous fact in the books of phyſic which I have read, I communicate this to you. If you judge it of ſufficient importance to merit further details, I will collect them, and with pleaſure addreſs them to you."

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§ 13. *Objections to a remarkable Propoſition of* Lavoiſier. *By Dr.* J. Carradori de Prato.

It is too common in *phyſics* to draw general inferences from particular facts. Analogy is frequently an aſſiſtant to the obſerver and experimentaliſt, but it frequently, alſo, is a falſe guide. In order to generalize with ſafety, it is firſt neceſſary to have accumulated a large number of facts, all tending to the ſame point. The philoſopher ought never to ſuffer himſelf to be ſeduced by appearances; for this

this ſeems to be the way in which Nature delights to deceive him. *Lavoiſier*, led by analogy to believe that all fluids are evaporable, and equally capable of being affected by caloric, did not heſitate to advance a general propoſition, which is abſolutely falſe. He has laid it down as a general rule, that the ſame body may be either ſolid, or fluid, or æriform, in proportion to the quantity of caloric that penetrates it; becauſe it is from caloric, which exerts a repulſive force, that is to ſay, tends to overcome the attraction of the molecules of bodies, that they receive theſe modifications. If this repulſive force be inferior to the force of attraction which the particles of any given body have for each other, it will be ſolid; if equal, it will be fluid; if greater, aeriform.

But beſides theſe two powers, which influence the change of form in bodies, there is a third force which acts on them, and this is the preſſure of the atmoſphere. This force ſerves even as an obſtacle to the ſeparation of the particles of bodies, and prevents the repulſive power of caloric from ſo eaſily overcoming the attractive force, which keeps the particles together; whence it happens that if the preſſure of the atmoſphere were removed, or greatly reduced, we ſhould have no conſtant liquid: bodies, on the leaſt increaſe of heat beyond that which is neceſſary to render them fluid, would remain in a ſtate of vapour. Some perſons have thought, that, if the atmoſphere were wanting, all liquids would fly off into ſpace, and transform themſelves into vapour. But in conſidering thoſe things they have not regarded the attraction of the integrant molecules of bodies for caloric, which acts the moſt ſtriking part in theſe phenomena. It is beyond a doubt, that, in order to liquids being converted into vapour, they muſt combine with caloric, which is the agent that gives them the aerial form, by means of a particular affinity: for example, it is at preſent allowed by all chemiſts, that the vapours of water are nothing elſe than water combined with caloric in a fixed ſtate. In order to a liquid being converted into vapour, it is not ſufficient that the attractive force which exiſts between their particles, or the force of adheſion, be overcome by the repulſive power of the caloric; it is requiſite alſo that a portion of caloric combine with them; for without this condition the change of liquid into vapour cannot take place; and in order that this combination be effected, it is neceſſary that the particles of the fluid have firſt a diſpoſition to unite with caloric; or, as the chemiſts ſay, a certain degree of affinity with

the

the matter of heat. However, it is certain, as I have proved by deciſive experiments, that there are fluids, the integrant particles of which have no attraction whatever for caloric. In fact, theſe do not boil like water, and other evaporable fluids, becauſe they do not convert themſelves into vapour; for ebullition, as is well known, is nothing more than the effect of the vapour, into which the fluid ariſing from the bottom and ſides of the veſſel is transformed, agitating, in its paſſage to the ſurface, the whole maſs of liquid. All the fat oils, now more properly termed fixed oils, are of this nature. I have demonſtrated, in a former memoir, that the fixed oils do not boil; and the reaſon is, they are incapable of being converted into vapour.

Fluids of this ſort, to whatever degree of heat they are expoſed, burn, but do not abſolutely boil. The evaporation which takes place at their ſurface is not a natural evaporation, ſimilar to that of water and other evaporable fluids, and which conſiſts in a ſimple combination of the integrant parts of the ſame fluids with heat, without any further alteration; but it is an evaporation occaſioned by the decompoſition of the oil, in conſequence of combuſtion. The ſtrong heat which all the fixed oils are capable of receiving produces the ſeparation of the volatile parts of which they are compoſed, and occaſions the formation of the vapours which ariſe from their ſurface; it is not the natural or undecompoſed oil in the ſtate of vapour; that is to ſay, combined with a portion of caloric. Nothing more, therefore, takes place than ſuch a diſtillation as we obſerve in all combuſtible bodies, when we expoſe them to a great degree of heat. It is certain, alſo, that this evaporation is produced by a decompoſition of the oil itſelf, which burns ſlowly, and that it is not a ſimple developement of oily vapours. When the oil begins to evaporate, the odour of burnt oil is immediately perceived; and if the flame of a taper be made to approach the ſurface of the evaporating oil, the vapour or ſmoke inſtantly inflames, like all other combuſtibles ſet to burn over the fire. It is the elements of the decompoſed oil, or the ſmoke, that burns; for oil in its natural ſtate is incapable of combuſtion. Alſo when fixed oils, or oily bodies, are ſubjected to a ſtrong heat, empyreumatic oil comes over; but all chemiſts agree that this has properties altogether different from the fixed oils.

On the contrary, all fluids which boil have the property of being converted into vapours; and thoſe which are the moſt eaſily evapo-

rable

rable boil the ſooneſt; that is, at a leſs degree of heat. The general propoſition of *Lavoiſier*, therefore, that liquids are in an accidental ſtate, depending, after caloric, on the preſſure of the atmoſphere, is not true. We may apply to fixed oils as much caloric as we pleaſe, in order that its repulſive force may overcome the atmoſpheric compreſſion, but it will never transform them into vapour. There are, therefore, bodies in a conſtant ſtate of fluidity, and that becauſe they have not a degree of attraction for the matter of heat ſufficient to unite with it, and by this means be converted into the ſtate of vapour. Without this attraction it is totally impoſſible that they ſhould ever overcome the force of attraction, or the coheſion of their particles, and be transformed into vapour, though in other reſpects under the moſt favourable circumſtances.

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§ 14. *On the Sugar of Honey.*

It has been ſuppoſed that the great difference between honey and ſugar conſiſted in the preſence of an acid in the former; and that by depriving it of this acid, honey became converted into ſugar.* Some experiments of M. *Prouſt*, related in the *Journal de Phyſique* (tom. 54, p. 199) render this opinion doubtful. The white honey he examined produced no change in the colour of *turnſol*. Alkohol diſſolved it entirely, excepting a few minute portions of wax. The ſolution did not change the acetite of lead. When boiled with chalk, no portion of the latter was diſſolved by it, and alkohol occaſioned no precipitate in honey treated in this way. It preſerves, beſides, its odour, flavour, &c.

Honey, when treated with the nitric acid, is changed entirely into oxalic acid: it differs from manna, in that the latter gives the *ſaccho-lactic* acid of Scheele.

In the ſame letter M. *Prouſt* remarks, "that gum arabic and gum tragacanth contain *gluten*: I don't know whether I mentioned to you in my former letter that gluten exiſts alſo in barley; it is this which is found alſo in yeaſt, leaven, in rice, in the cheſnut, the acorn, beans and peaſe of all kinds; in ſweet and bitter almonds; in cacao, &c.; but not at all in the potatoe. Hence it is that this root is never flatulent. I am indebted to it for my convaleſcence."

* See page 373 of our laſt volume.

§ 15.

§ 15. *Singular Inſtance of falling off of the Hair in Conſequence of Fright, communicated to M.* Delametherie. (Journ. de Phyſ. Germinal, An. x.)

'A merchant of the department of Izère was placed, himſelf, his wife, his children, together with all that bore his name, on the liſt of the *eminently ſuſpected*, during the reign of terror in France. He concealed himſelf; but the profound terror with which he was ſtruck followed him in his retreat, and he loſt, in the ſpace of four-and-twenty hours, his beard, hair, eye-brows, and abſolutely all the hair of his body. Some perſons, in a ſimilar ſituation, have obſerved their beard and hair to become white in a ſhort ſpace of time, in a night, and even in a few hours. But has ſuch a complete depilation been before witneſſed?'

The ſame correſpondent makes the following remarks on the theory of M. *Michelotti*, reſpecting the influence of light on germination.

'*Michelotti* has concluded from his experiments on the eggs of the *phalena*, and perhaps of ſome other ſpecies, "that light is pernicious to the developement of *all* animal germs." But has he never ſeen, in the country where he reſides, as is the caſe in our's, numerous inſtances of caterpillars, ſpiders, flies, and other inſects, which depoſit their ova on the branches and leaves of trees, on the decayed vegetables, or the walls, ſome quite expoſed, others covered with hair, or with a tranſparent tiſſue which does not prevent the acceſs of light to them? The ova of almoſt all inſects that paſs the firſt period of their exiſtence in the water, are they not expoſed to light under the water? Many fiſhes, frogs, and toads, do they not depoſit their eggs in ſuch a way as to have the influence of light exerted on them? What numerous exceptions are there not to the law which M. *Michelotti* aſſigns to Nature! Why expoſe the ova in his experiments in glaſſes, the curvature of which muſt condenſe the rays of light on them, and give them a degree of heat that muſt tend to dry them up? They ſhould have been expoſed to the light in the open air; then, probably, it would not have appeared ſo injurious to *all*.'

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§ 16. *Cure of Venereal Diſeaſe without Mercury.*

It is an opinion that has been gaining ground ever ſince the introduction of the venereal diſeaſe into this part of Europe, and now pretty

pretty generally entertained, that no remedy but mercury is to be relied on for the cure of the venereal diſeaſe. This opinion, however, is not certainly proved, even in this part of the world; it is rendered very doubtful by the effects experienced of late from the acids, and other analogous remedies, as well as from the reputation (fleeting, indeed) which particular ſubſtances have, from time to time, poſſeſſed, as antiſiphylitic remedies; but which they could not well have acquired, had they not poſſeſſed ſome real power over the diſeaſe, at leaſt, in certain circumſtances.

However the fact be in the colder regions of Europe, there can be no doubt of the venereal diſeaſe having been often ſucceſsfully treated in warm climates by other remedies than mercury, the uſe of which is by no means as widely known as the diſeaſe itſelf. Of this we have the recent teſtimony of an obſervant traveller into the interior of Africa.* Speaking of the people of *Fezzan*, a kingdom in the very centre of the African continent, Mr. *Horneman* obſerves, "There "are various ſorts of venereal diſorders prevalent in *Fezzan*; that "imported from *Soudan* is the worſt. The common lues venerea "brought from Tripoli and Cairo is called *franzi*, or the *frank* evil. "For the cure of either ſpecies they uſe ſalts, and the fruit *handal* "(colocynth), as powerful cathartics; and the ſores, if any, are "at the ſame time waſhed with natron water, or diſſolved ſoda. "Theſe remedies ſeldom fail, unleſs the diſeaſe has taken a very deep "root.

"The other maladies prevalent here are hæmorrhoides, no doubt "greatly increaſed by the immoderate uſe of red pepper; and a fe"ver and ague, which is particularly dangerous to foreigners. In "theſe diſorders there is no remedy whatever known or uſed but "amulets, conſiſting of certain ſentences tranſcribed from the Ko"ran, on a ſlip of paper, which the patient is made to wear about "his neck, and in bad caſes is made to ſwallow. Phlebotomy is un"known; but blood is occaſionally drawn by means of cupping. As "to ſurgery, I heard there were people at *Mourzouk* (the capital of "the country) who had ſufficient ability to cure a ſimple fracture."

In a ſubſequent letter Mr. *Horneman* further obſerves, "In ad"dition to what I ſtated in my letter of the 24th of March, I have to "obſerve, that, in the ſmall pox, the application uſed here to pre-

* *Fred. Horneman's* Travels from *Cairo* to *Mourzouk*, the capital of the kingdom of *Fezzan*, in Africa, in the years 1797-8. 4to., London, 1802.

"ſerve

" ſerve the eyes of children conſiſts of what they term *ſam ſuc* (ta-
" marinds), and zurenbula zigollan (onions), and this with good ef-
" fect, as I am told.

" I have more particularly made enquiry reſpecting venereal
" diſorders, and can confirm what I before wrote, that ſalts and
" coloquintida (in Arabic *handal*) are ſpecific remedies for that diſ-
" eaſe in this country, and uſed in the manner I deſcribed.

" From every information I can collect, the natives of *Fezzan* are
" not ſuſceptible of venereal infection more than once in their lives.
" It is ſingular, that, notwithſtanding there is a great difference as to
" the nature of this diſeaſe, between poxes brought here by the cara-
" van from *Soudan*, and by thoſe from *Tripoli* and *Cairo*, yet never
" (or at leaſt very ſeldom) can a man get theſe two ſorts, one after
" the other, in the courſe of his life."

The above account is ſufficient to excite our curioſity, but not to gratify it. It is to be regretted that the author was not a medical obſerver. The hiſtory of diſeaſe can only be rendered perfect by obſerving it under varieties of climate, and an infinitude of other circumſtances.

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§ 17.

A treatiſe on cow pock, from the pen of Dr. G. Pearſon, has juſt made its appearance; of which we have only time at preſent to obſerve, that he diſcuſſes, in a temperate manner, from the hiſtory of facts carefully collected, the claims of Dr. Jenner on the ſubject. In our next we propoſe to enter fully into this matter.

ACCOUNT

ACCOUNT OF THE PRINCIPAL LECTURES

IN THE

DIFFERENT BRANCHES OF MEDICINE,

Which will be read the enſuing Winter in London.

ST. THOMAS's and GUY's HOSPITALS, 1802.

The Lectures given at the Theatres of theſe contiguous Hoſpitals will commence in the following order:

ST. THOMAS's HOSPITAL.

Anatomy and Surgery, by Mr. CLINE and Mr. ASTLEY COOPER, On Friday, October 1, at one o'clock.

GUY's HOSPITAL.

Practice of Medicine, by Dr. BABINGTON and Dr. CURRY, On Monday, October 4, at ten in the morning.

Theory and Practice of Chemiſtry, by Dr. BABINGTON and Mr. ALLEN, On Tueſday, October 5, at ten in the morning.

Theory of Medicine, and Materia Medica, by Dr. CURRY, On Tueſday, October 5, at ſeven in the evening.

Midwifery, and Diſeaſes of Women and Children, by Dr. HAIGHTON, On Wedneſday, October 6, at eight in the morning.

Phyſiology, or Laws of the Animal Œconomy, by Dr. HAIGHTON, On Monday, October 11, at a quarter before ſeven in the evening.

Principles and Practice of Surgery, by Mr. ASTLEY COOPER (illuſtrated by ſelect caſes under his care in Guy's Hoſpital), On Monday, October 11, at eight in the evening.

☞ The ſeveral Lectures given at theſe contiguous Hoſpitals are ſo arranged, that no two of them interfere with each other in the hours of attendance; and the whole is calculated to form a complete courſe of medical and ſurgical inſtruction.

Terms and other particulars to be learnt by applying to Mr. Stocker, Apothecary to Guy's Hoſpital; who is likewiſe empowered to enter Gentlemen as pupils to any of the above Lectures.

ST. BARTHOLOMEW's HOSPITAL.

The following Courſes of Lectures will be delivered in the Medical Theatre, St. Bartholomew's Hoſpital, during the enſuing winter.

On the Theory and Practice of Medicine, by Dr. ROBERTS and Dr. POWELL.

Clinical Lectures on caſes occurring in the Hoſpital will alſo be given by Dr. ROBERTS.

On Anatomy and Phyſiology, by Mr. ABERNETHY.

On the Theory and Practice of Surgery, by Mr. ABERNETHY.

On Comparative Anatomy and Phyſiology, by Mr. MACARTNEY.

On Chemiſtry and the Materia Medica, by Dr. POWELL.

On Midwifery and the Diſeaſes of Women and Children, by Dr. THYNNE.

The Anatomical Lectures will begin on the 1ſt of October, at two o'clock, and the other Lectures on the following days; which, with other particulars, may be learned by applying to Mr. Nicholſon, at the Apothecary's Shop, St. Bartholomew's Hoſpital.

THEATRE, LONDON HOSPITAL.

Mr. HEADINGTON and Mr. FRAMPTON will commence their Lectures on Anatomy, Phyſiology, and the Principles and Operations of Surgery, on Friday the 1ſt of October, at nine in the morning.

Private teaching under the direction of Mr. ARMIGER.

During the winter, a Courſe of Lectures on Surgery, illuſtrated by caſes received into the Hoſpital, will be delivered by Mr. BLIZARD, Mr. T. BLIZARD, and Mr. HEADINGTON.

Midwifery.

Dr. DENNISON and Dr. SQUIRE will commence their Lectures on the Theory and Practice of Midwifery, and the Diſeaſes of Women and Children, as uſual, viz. Dr. Denniſon at the Theatre of the London Hoſpital, on Friday, October 1, at eleven in the forenoon; and Dr. Squire, on Monday, October 3, at ſix in the evening, at their Obſtetrical Theatre, No. 13, Godliman Street, Doctors Commons. Farther particulars may be known by applying to Dr. Denniſon, No. 37, New Broad Street Buildings; and Dr. Squire, No. 7, Ely Place, Holborn.

The ſecond week in October the Courſes of Lectures on Phyſic and Chemiſtry will begin at the Laboratory, in Whitcomb Street, Leiceſter Square, by GEORGE PEARSON, M. D. F. R. S. of the College of Phyſicians, London, and Senior Phyſician to St. George's Hoſpital.

A Lecture is given on Therapeutics and the Materia Medica, from a quarter before to a quarter paſt eight o'clock; on the Practice of Phyſic, from a quarter paſt eight to about nine; and on Chemiſtry, from a quarter after nine to ten o'clock every morning, excepting Saturdays; on which days a Lecture is delivered on the Practice of Phyſic from eight to nine, and on the Caſes of Patients from nine to ten.

Particulars

Particulars may be had at St. George's Hoſpital, and at Dr. Pearſon's Houſe, in Leiceſter Square.

THEATRE OF ANATOMY, GREAT WINDMILL STREET.

Mr. WILSON and Mr. THOMAS will begin the winter Courſe of their Lectures on Anatomy, Phyſiology, Pathology, and Surgery, on Friday, the 1ſt of October, at two o'clock.

Practical Anatomy will be continued in the forenoon, as uſual.

Further particulars may be known, and a printed plan of the Courſe had, by applying to Mr. Wilſon, at his Houſe in Argyle Street; or to Mr. Thomas, Leiceſter Square; alſo at the Theatre in Windmill Street.

Mr. THOMAS will commence his Courſe of Lectures on the Principles and Practice of Surgery, on Friday, October 8, in which the different operations will be performed, and the medical treatment fully explained.

Further particulars may be known at his Houſe in Leiceſter Square, or at the Anatomical Theatre, Windmill Street.

On Monday, October 4, at ſeven o'clock in the evening, the autumn Courſe of Lectures on the Principles and Practice of Surgery will commence, by JOHN PEARSON, Surgeon of the Lock Hoſpital and Aſylum, and of the Public Diſpenſary.

Particulars may be had at Mr. Pearſon's Houſe, Golden Square.

LECTURES BY WILLIAM BLAIR, A. M.

Member of the Royal College of Surgeons, Fellow of the Medical Societies of London and Paris, Surgeon of the Lock Hoſpital and Aſylum, and of the Bloomſbury Diſpenſary.

On the firſt Tueſday evening in October and February, at eight o'clock preciſely, will commence a Courſe of Lectures on Anatomy and the Animal Economy; for the information of ſcientific perſons, amateurs of natural hiſtory, ſtudents in the liberal arts, and profeſſional men in general.

On the firſt Friday evening in October and February, at ſix o'clock preciſely, will commence a Courſe of Lectures on the Clinical Practice of Surgery; to be illuſtrated by the caſes and operations which occur at the Bloomſbury Diſpenſary.

Particulars may be learnt at Mr. Blair's Houſe, No. 69, Great Ruſſel Street, Bloomſbury.

Letter

Letter from Dr. Davis, Phyſician, at Bath, to the Editors of the Medical and Chirurgical Review.

Bath, Auguſt 6, 1802.

GENTLEMEN,

In the report of the Committee on Dr. Jenner's petition, republiſhed in the late numbers of the Medical and Phyſical Journal, there are aſſertions, which, in juſtice to myſelf and others, I am obliged to contradict. At page 19 of the report, Mr. Cuff ſtates, 'That in November or December, 1800, he ſaw at Bath two children, named Coles, who had been inoculated by Dr. Davis; and another child who had likewiſe been inoculated by Mr. Goldſtone, with vaccine matter; that he had ſome converſation with Dr. Davis relative to the two before-mentioned children, and that Dr. Davis confeſſed himſelf not to be well acquainted with the diſeaſe, nor to know that the time when the matter was taken made any difference. He alſo ſtated, that in January, 1801, he had communicated to Dr. Jenner his apprehenſion that the inoculators at Bath would commit ſome miſtake in conſequence of their imperfect knowledge of the diſeaſe.'

I do declare, in the moſt unequivocal manner, that I made no confeſſion whatever to this perſon. I had, indeed, no converſation with him on the ſubject, except in the preſence of the father and mother of the children; and to have confeſſed my ignorance of the diſeaſe before them, would have indicated ſuch a want of common ſenſe as I believe none will accuſe me of. I remember that, on his ſeeing the arms of the children, he declared the appearance to be very complete. The father has told me that Mr. Cuff's opinion was highly ſatisfactory to him.

It muſt appear ſtrange, that, amongſt much poſitive evidence in favour of the cow-pox, any perſon ſhould have been allowed by the petitioner to give a report ſo vague and irrelevant. To prove the advantage of cow-pox inoculation, he aſſerts, that certain perſons are ignorant of the diſeaſe. One might as well attempt to prove that Dr. Jenner deſerves the reward he has gained becauſe he employed Mr. Cuff to colour his engravings. But the actions of men are often myſterious, until their motives are known. Let your readers be informed, then, that it was feared ſome evidence from Bath very unfavourable to the views of the petitioner would be laid before the Committee; to leſſen the force of which, it would appear, Mr. Wm. Cuff, a drawing maſter, has been employed to declare, that the practitioners of that place were, from their own confeſſion, incompetent to conduct the cow-pock inoculation.

No. LI.

THE MEDICAL AND CHIRURGICAL Review.

NOVEMBER, 1802.

ART. XXV. *Philoſophical Tranſactions of the Royal Society of London for* 1802. Part I.

(Continued from page 113.*)*

Art. 6. 'OBSERVATIONS and Experiments upon oxygenized* and hyper-oxygenized Muriatic Acid; and upon ſome Combinations of the Muriatic Acid in its three States. By Richard Chenevix, Eſq. F.R.S. &c.'—The author's object in this paper is to prove that muriatic acid exiſts in three different forms, according to the proportions of oxygen entering into its compoſition: viz. *ſimple*, *oxygenized*, and *hyper-oxygenized* muriatic acid; and that in either ſtate it is capable of entering into ſaline combinations, forming different compounds with each.

Mr. Chenevix firſt deſcribes the means by which he ſucceeded in aſcertaining the conſtituent parts, as well as the proportions, in oxygenized and hyper-oxygenized muriatic acid. The general reſult, which is

* The author prefers this word to *oxygenated*, becauſe *ate* is the appropriate termination of certain ſalts formed by the acids in *ic*.

all that our limits permit us to notice, is ſtated as follows:—

One hundred parts of the *hyper-oxygenized* muriatic acid conſiſt of

Oxygen	65
Muriatic acid	35
	100

And the elements of *hyper-oxygenized* muriatic acid are

Oxygen	38, 3	hyper-oxygenized muriatic acid	58, 3
Muriatic acid	20,		
Potaſh			39, 2
Water			2, 5
			100, 0

The proportions which combine to form *oxygenized* muriatic acid are

Muriatic acid	84
Oxygen	16
	100

Having proved the difference between the ſtates of thoſe two acids, the author proceeds to mention the combination of each with acidifiable baſes.

The oxygenized muriates, he obſerves, cannot be exhibited in a palpable ſtate, yet it is eaſy to demonſtrate that they do exiſt.

The hyper-oxygenized compounds noticed are, 1ſt. thoſe with alkaline and earthy baſes; as the hyper-oxygenized muriate of potaſh, ſoda, barytes, ſtrontia, lime, ammonia, magneſia, alumina, ſilica: the order of affinity with the acid appears to be that juſt ſtated. The combinations of the muriatic acid in its different ſtates with the metals, are, however, more intereſting objects of inquiry to the practical phyſician.

'The

'The action of hyper-oxygenized muriatic acid upon metals is, as may well be expected, rapid, and without diſengagement of gas. It appears to diſſolve every metal, not excepting gold and platina. If the metal be preſented to the acid at the moment when it is diſengaged from the ſalt, inflammation enſues; and the phenomena of light and heat vary according to the metal; but the ſalts thus produced are merely muriates. In order to form real hyper-oxygenized muriates, it is neceſſary to take the metal in its fulleſt ſtate of oxidizement, and combine it with the acid, either by double decompoſition, or by paſſing a current of oxygenized muriatic acid gas through the oxide ſuſpended in water. The acid is thus ſeparated into muriatic and hyper-oxygenized muriatic acid; and, in theſe ſtates, combines with the metallic oxide. The metallic hyper-oxygenized muriates are different, in every reſpect, from the metallic muriates. Red oxide of iron is diſſolved with difficulty: oxide of copper more eaſily. Red oxide of lead exhibits the ſame appearances, during its combination with this acid, as with nitric acid. When nitric acid is poured, even in exceſs, upon red oxide of lead, only a part of the oxide is diſſolved, unleſs heat be applied; and what remains becomes a blackiſh brown powder. But if metallic lead be added in a juſt proportion, all the red oxide diſappears, and none of the brown powder is formed; neither is there any diſengagement of nitrous gas when the metallic lead is diſſolved. The precipitates cauſed in either caſe, by pouring an alkali into the nitric ſolution, are yellow: hence it appears that red oxide of lead contains too much oxygen to be diſſolved by nitric acid. One part of the oxide takes up the exceſs of oxygen, and becomes brown; while the portion which loſes oxygen becomes yellow, and is ſoluble in nitric acid. The preſence of metallic lead promotes the total ſolution of the red oxide, by taking up the ſuperabundant oxygen. I found that a current

of oxygenized muriatic acid gas, like the nitric acid, diſſolved a part of the red oxide, and cauſed the brown powder to be formed, upon which it could not act. Hyper-oxygenized muriate of lead is much more ſoluble than muriate of lead; and the acid is very ſlightly attracted by the baſis.

'But, of all the metallic ſalts formed by the combination of the muriatic acid, in any of its different ſtates, none ſo much deſerve attention as thoſe which have for their baſes the oxides of mercury. The nature of the ſalts which reſult from the combination of common muriatic acid with the different oxides of this metal, has been ſtated in the moſt contradictory manner by different chemiſts; but, as the knowledge of hyper-oxygenized muriatic acid has thrown ſome light upon the true ſtate of calomel and corroſive ſublimate, I muſt beg leave to dwell at ſome length upon this important part of my ſubject. It would be uſeleſs to repeat the opinions of the old authors who have treated of corroſive ſublimate and of calomel: they are to be found in the works of thoſe reſpective chemiſts, and I muſt refer to them for particulars.

'In the Memoirs of the Academy of Sciences of Paris for 1780, we find a paper of M. Berthollet upon the cauſticity of metallic ſalts; in which he appears to think that the acid in corroſive ſublimate is in the ſtate of what was then called dephlogiſticated marine acid. In 1785, when he had examined the oxygenized muriatic acid with more care, he renounced his former opinion, and gave the reaſons why he no longer adhered to it. Some late experiments of M. Prouſt ſhew, that this chemiſt thinks as M. Berthollet now does: and theſe may be ranked among the firſt of modern authorities.

'Notwithſtanding thoſe opinions, M. Fourcroy, in his Syſteme des Connoiſſances Chymiques, ſtill conſiders corroſive ſublimate as a hyper-oxygenized muriate of mercury, and deſigns it throughout by that name.

name. This chemiſt, one of the founders of the methodical nomenclature, is too well acquainted with its principles to apply the term hyper-oxygenized muriate to any thing but a combination of hyper-oxygenized muriatic acid: it is evident, therefore, that he conſiders the portion of oxygen, which, in equal quantities of corroſive ſublimate and calomel, is greater in the former, to be combined with the acid, and not with the oxide of mercury. As ſoon as I have ſtated ſome experiments that prove M. Fourcroy's opinion to be erroneous, and endeavoured to eſtabliſh the analyſis of corroſive ſublimate and of calomel, I ſhall take notice of a ſalt hitherto unknown, which really is hyper-oxygenized muriate of mercury.

'I took a portion of corroſive ſublimate, and precipitated by potaſh. The liquor was filtered, and, upon being tried, nothing but muriate of potaſh was found. No re-agent could diſcover the ſmalleſt trace of hyper-oxygenized muriatic acid.

'Sulphuric, nitric, phoſphoric, and many other acids, poured upon corroſive ſublimate, did not diſengage either muriatic or hyper-oxygenized muriatic acid. Nitrate of ſilver, poured into a ſolution of corroſive ſublimate, gave an abundant white precipitate.

'From theſe experiments it is evident that muriatic acid, not hyper-oxygenized muriatic acid, is combined with the oxide of mercury in corroſive ſublimate.

'To determine the proportions of this ſalt, I took one hundred parts, and precipitated by nitrate of ſilver: I then took another hundred, and precipitated by potaſh. The reſult of theſe two experiments was ſuch as to eſtabliſh the proportions of corroſive ſublimate as follow:

Oxide of mercury	82
Muriatic acid	18
	100

'But the acid of this ſalt not being charged with a ſuperabundance of oxygen, we muſt look for the exceſs in the metallic oxide. I took 100 grains of mercury, and diſſolved them in nitric acid; then poured in muriatic acid; and, at a very gentle heat, evaporated to dryneſs: I afterwards ſublimed, in a Florence flaſk, the ſalt that remained, and obtained 143,5 of corroſive ſublimate. But 143,5 of corroſive ſublimate contain 26 of acid, which will leave 117,5 for the mercurial oxide; and, if 117,5 contain 100 of mercury, 100 of the oxide will contain 85: therefore the oxide of mercury, in corroſive ſublimate, is oxidized at the rate of 15 per cent.

'To determine the proportions in calomel, I diſſolved 100 grains of it in nitric acid. The phenomena of the ſolution have been ſo accurately deſcribed by M. Berthollet, that I ſhall not repeat them. I precipitated by nitrate of ſilver, and obtained a quantity of muriate of ſilver, correſponding with 11,5 of muriatic acid. The oxide of mercury I obtained apart. Therefore calomel is compoſed of

Oxide of mercury	88, 5
Muriatic acid	11, 5
	100,0

'To aſcertain the ſtate of oxidizement of the oxide in calomel, I took 100 grains, and boiled them with nitro-muriatic acid; then evaporated very ſlowly, and ſublimed as above. The calomel was totally converted into corroſive ſublimate, and weighed 113. But 113 of corroſive ſublimate contain 20,3 of muriatic acid, of which 11,5 were originally in the calomel. The total addition of weight was 13; but the quantity of acid in theſe 13 amounts to 20,3—11,5=8,8. Therefore 13—8,8=4,2 remain for that part of the additional weight, which is oxygen. On the other hand, 100 of calomel contain the ſame quantity of mercury as 113 of corroſive ſublimate, =79. Theſe 79 with 11,5 of acid are equal to 90,5, and leave 9,5 for the quantity of oxygen contained in calomel. It would appear, from theſe

theſe experiments, that corroſive ſublimate contains 6,5 per cent. more acid, and but 2,8 per cent. more oxygen, than calomel. But this quantity of oxygen is combined with a much greater proportion of mercury, and forms an oxide of a very different degree of oxidizement. For 88,5 : 9,5 : : 100 : 10,7. Therefore we may eſtabliſh the following comparative table.

CALOMEL.			CORROSIVE SUBLIMATE.		
The oxide of mercury in calomel is compoſed of,			The oxide of mercury in corroſive ſublimate is compoſed of,		
Mercury		89,3	Mercury		85
Oxygen		10,7	Oxygen		15
		100,0			100
And calomel is compoſed of,			And corroſive ſublimate is compoſed of,		
Mercury 79, Oxygen 9,5	oxide of mercury	88,5	Mercury 69,7, Oxygen 12,3	oxide of mercury	82
Muriatic acid		11,5	Muriatic acid		18
		100,0			100

'Theſe proportions are different from thoſe given by Lemery, Geoffroy, Bergman, &c. But, without calling in queſtion the accuracy and ſkill of theſe chemiſts, it is fair to aſſert that the pure materials uſed by modern chemiſts are more likely to lead to ſure reſults than the impure re-agents of the antients.

'In theſe ſalts we find another inſtance, that, in proportion as metallic oxides contain a greater quantity of oxygen, they require a greater quantity of acid to enter into combination with them.

'The method I have followed to aſcertain the proportions juſt ſtated, may appear, at firſt view, not to be the ſhorteſt that I might have adopted. But I have tried others, and have found none ſo accurate. It is impoſſible, ſynthetically, to convert a given quantity of mercury into calomel in ſuch a manner as to be certain that none of it is in a different ſtate from that required. And, if we would attack calomel analytically, the action of the alkalis, without which we

cannot proceed, is ſuch as to alter the nature of the oxides. I have alſo made many comparative experiments, by diſſolving calomel in nitro-muriatic acid (which converted it into corroſive ſublimate), and then precipitating by ammonia; but I have not found theſe trials ſo ſucceſsful as thoſe I have deſcribed. The nature of the precipitate from corroſive ſublimate by ammonia certainly differs according to the exceſs of acid that may be preſent; and mercury ſeems to have the power of exiſting in many degrees of combination with oxygen. The only precaution abſolutely neceſſary in this mode of operating, is, that, while the mercurial ſalt is in an open veſſel, it ſhould not be expoſed to a degree of heat capable of volatilizing any part of it.

'The quantity of mercury ordered in the London Pharmacopœia to convert corroſive ſublimate into calomel is nine pounds of mercury for every twelve pounds of corroſive ſublimate. But, from the above experiments, it would appear that a ſmaller quantity of mercury might ſtrictly anſwer. However, from the reſults of minute inveſtigation, we ſhould not conclude too haſtily upon preparations on the great ſcale; and I rather think that the exceſs of mercury ordered by the Pharmacopœia is a uſeful precaution.

'In my experiments I attempted to reduce, by means of copper, iron, or zinc, the mercury contained in the mercurial ſalts. Iron did not anſwer the purpoſe, zinc precipitated the mercury a little better, and copper produced a change which I did not expect. If a bit of copper be put into a ſolution of corroſive ſublimate, a white powder ſhortly falls to the bottom; and that powder is calomel. When waſhed, it does not contain an atom of copper, nor of corroſive ſublimate.

'Before I conclude theſe conſiderations, I muſt ſay, that, whether calomel be prepared in the dry or in the humid way, it does not ſeem to differ chemically; nor does it contain any ſenſible portion of water of cryſtallization.

tallization. The ſame may be ſaid of corroſive ſublimate.

'It now remains to ſpeak of the real hyper-oxygenized muriate of mercury. I paſſed a current of oxygenized muriatic acid gas through ſome water, in which there was red oxide of mercury. After a ſhort time the oxide became of a very dark brown colour, and a ſolution appeared to have taken place. The current was continued for ſome time, and, when I thought that a ſufficient quantity of the oxide had been diſſolved, I ſtopped the operation. The liquor was evaporated to dryneſs, and the ſalt was thus obtained. There evidently was in the maſs a great proportion of corroſive ſublimate, as might be expected from what I had obſerved to take place in the formation of the other ſalts of this acid; but, by carefully ſeparating the laſt formed cryſtals, I could pick out ſome hyper-oxygenized muriate of mercury: I then cryſtallized it over again; and in this manner I obtained it nearly pure. This ſalt is more ſoluble than corroſive ſublimate: about four parts of water retain it in ſolution. The ſhape of its cryſtals I cannot well determine. When ſulphuric or even weaker acids are poured upon it, it gives out the uſual ſmell of hyper-oxygenized muriatic acid, and the liquor becomes of an orange colour. This is a ſufficient proof that corroſive ſublimate is not a hyper-oxygenized muriate of mercury.

'I have juſt mentioned, that, in the formation of this ſalt, the oxide of mercury, which was not diſſolved by the acid, became of a very dark brown colour. I procured a portion of this oxide, which ſeemed different from the red oxide. It however retained the form and the cryſtalline appearance of the latter. It was ſoluble in nitric acid, without diſengagement of gas, and was precipitated from it, in a yellow oxide, by all the alkalis, except ammonia. It formed corroſive ſublimate with muriatic acid, and the precipitate by the alkalis

alkalis was the ſame as that from corroſive ſublimate made with the red oxide. Yet I am inclined to think that the dark brown oxide differs in ſome eſſential Point from the red; but I have not yet made ſufficient experiments to prove this opinion. At all events, the preſent object being to examine the mercurial oxides only, as combined with muriatic acid, it would be foreign to the purpoſe to enter upon too minute an inveſtigation of the other ſtates of the metal. This, and ſome other objects hinted at in this paper, muſt be reſerved for future inquiry.'

The laſt article is entitled, 'Experiments and Obſervations on certain ſtony and metalline Subſtances, which at different Times are ſaid to have fallen on the Earth; alſo on various Kinds of native Iron. By Edward Howard, Eſq. F.R.S.'—The concordance of a variety of facts ſeems to render it almoſt indiſputable, Mr. Howard obſerves, that certain ſtony and metalline ſubſtances have, at different periods, fallen on the earth; though whence their origin, or whence they came, is yet involved in complete obſcurity.

Several ſpecimens of thoſe ſtones were examined by Mr. Howard, and they appear to have a conſiderable reſemblance to each other, both in their external characters and chemical conſtitution. They appear alſo to have no ſmall analogy with the ſpecimens of native iron which are here and there found in the cabinets of the curious mineralogiſt. On the whole, Mr. H. concludes as follows:

'It will appear, from a collected view of the preceding pages and authorities, that a number of ſtones, aſſerted to have fallen under ſimilar circumſtances, have preciſely the ſame characters. The ſtones from Benares, the ſtone from Yorkſhire, that from Sienna, and a fragment of one from Bohemia, have a relation to each other not to be queſtioned.

'1ſt.

'1ſt. They have all pyrites of a peculiar character.

'2dly. They have all a coating of black oxyd of iron.

'3dly. They all contain an alloy of iron and nickel. And,

'4thly. The earths which ſerve to them as a ſort of connecting medium correſpond in their nature and nearly in their proportions.

'Moreover, in the ſtones from Benares, pyrites and globular bodies are exceedingly diſtinct. In the others they are more or leſs definite; and that from Sienna had one of its globules tranſparent. Meteors, or lightning, attended the deſcent of the ſtones at Benares, and at Sienna. Such coincidence of circumſtances, and the unqueſtionable authorities I have adduced, muſt, I imagine, remove all doubt as to the deſcent of theſe ſtony ſubſtances; for, to diſbelieve on the mere ground of incomprehenſibility, would be to diſpute moſt of the works of Nature.

'Reſpecting the kinds of iron called native, they all contain nickel. The maſs in South America is hollow, has concavities, and appears to have been in a ſoft or welding ſtate, becauſe it has received various impreſſions.

'The Siberian iron has globular concavities, in part filled with a tranſparent ſubſtance, which, the proportional quantity of oxyd of iron excepted, has nearly the compoſition of the globules in the ſtones from Benares.

'The iron from Bohemia adheres to earthy matter ſtudded with globular bodies. The Senegal iron had been completely mutilated before it came under my examination.

'From theſe facts I ſhall draw no concluſion, but ſubmit the following queries.

'1ſt. Have not all fallen ſtones, and what are called native irons, the ſame origin?

'2dly. Are all, or any, the produce or the bodies of meteors?

'And,

'And, laſtly, Might not the ſtone from Yorkſhire have formed a meteor in regions too elevated to be diſcovered?'

Art. XXVI. Duncans' *Annals of Medicine for the Year* 1801.

(Continued from page 14.*)*

17. THE next article we are to notice is entitled, '*Obſervations on a Caſe of Zona; on the Cow-pox; and on Angina Pectoris.* By Dr. *Albers*, Phyſician at Bremen.'—The caſe of zona, or ſhingles, is only noted for what the author ſuppoſes a ſingularity, but which we apprehend to be not uncommon; viz. its forming more than half a circle, or extending more than half round the body.

Nearly 2000 perſons, the author obſerves, have been inoculated at Bremen in the courſe of a year with vaccine matter, and not one of them was infected with ſmall-pox during a dreadful epidemic which raged in that place for a whole ſummer. The only unpleaſant circumſtances obſerved were, chronic eruptions, and glandular ſwellings, which almoſt always terminated in ſuppuration.—The caſe of angina pectoris is well deſcribed, but contains nothing materially different from others heretofore related.

18. *Extract of a Letter to Dr. Duncan, Sen., from Mr. James Anderſon, Surgeon in Edinburgh, concerning the Uſe of the mild Muriate of Quickſilver in the Cure of Croup.*—Mr. Anderſon, on a former occaſion, adviſed calomel as a remedy in cynanche trachealis, or croup. At preſent he obſerves, that he has followed the ſame mode of practice with increaſing ſucceſs. He has given, he remarks, to a child of three years old,

old, in whom the ſymptoms were urgent, eighteen grains of calomel in the ſpace of twenty-four hours, in doſes of two or three grains every hour. In no caſe has the medicine produced any violent evacuation, nor have the patients been griped by it, as one might have expected.

19. *Obſervations on a Caſe of Diabetes Inſipidus, with an Account of ſome Experiments on the Urine. By* Mr. Thomas Jarrold, *Student at Edinburgh.*—The quantity of urine in this caſe was enormous: it was often, we are told, found to amount to upwards of fifty pounds in the ſpace of twenty-four hours, ſometimes even to ſixty, and one day to ſeventy-two pounds; and, from exceſſive thirſt, ſhe employed nearly an equal quantity of liquid by way of drink.

No trace of ſugar was ever found in this urine, which, indeed, was not eaſily diſtinguiſhable, in its ſenſible qualities, from the urine of a healthy perſon much diluted; and when it was examined by the teſts recommended by Fourcroy, Vauquelin, and Cruickſhank, all the ingredients of healthy urine were detected, but in ſmaller proportions than in the natural, except the muriatic acid, which was often in exceſs.

The patient recovered her health after a time. Nutgalls and lime-water were preſcribed; but it is not certain that they effected the cure, as the complaint was, to appearance, on the decline when the medicine was firſt adminiſtered. The caſe has probably more alliance to the copious flow of urine frequently obſerved in hyſteric women, than to the true diabetes (diabetes mellitus), which is generally an incurable diſeaſe.

20. *Obſervations on Bilious Diſorders. From a Letter, dated from the River Ganges, in September* 1770. *By* John Sherwen, *M.D., formerly Surgeon in the Service of the Eaſt India Company.*—The cauſes of the great frequency of bilious diſorders in the Eaſt Indies

Indies here aſſigned are, climate, irregularity in diet, and paſſions of the mind. Though the firſt and laſt of theſe have much effect in exciting the diſorders in queſtion, it is certain that by far the moſt powerful ſource of the miſchief is the great irregularity in living which Europeans are addicted to in hot climates.

21. *Letter from Dr. Paiſley, of Madras, on the Bilious Diſorders of that Climate: written in* 1771.—According to the author's obſervation, the grand ſource of health and diſeaſe, in the eaſtern regions, is centered in the natural or diſeaſed condition of the liver; every chronic and lingering illneſs ariſing, in a conſiderable degree, from ſome defect there: and in many acute diſorders it has alſo its ſhare. The flux in general, the author obſerves, is little more than a ſymptom, the cauſe of which is an obſtructed liver and meſentery. The chief remedy adviſed in this, and indeed in moſt diſeaſes of hot climates, is mercury; the only one, we are told, capable of removing the obſtruction.

22. *Letter from Mr. Young, relating his own Caſe, in which an enlarged Spleen was cured by the Application of the Actual Cautery.*—The caſe here deſcribed is an intereſting one, though the remedy, however efficacious, is not likely to be adopted in European practice. Yet it is probably far leſs ſevere than many of our operations, and perhaps than the cauſtic itſelf, when we conſider how quickly the operation is terminated.

'As you ſome time ago expreſſed a wiſh to have a written account of the method by which I was cured of the boſs by the actual cautery, I ſhall now proceed to ſtate it to you. The diſeaſe called, by Europeans in Bengal, boſs (a denomination, I believe, originally introduced by the Portugeſe), better known amongſt the natives under the name of pillé, and I believe in Europe called the ague cake, is an obſtruction and enlargement of the ſpleen. This is rarely a primary diſeaſe

diſeaſe in that country, though it ſometimes occurs: it is more generally the conſequence of the bilious remitting fever, and uſually makes its appearance on the termination of that fever, during a ſtate of convaleſcence. Such was the preciſe caſe with me, though I am not perfectly ſatisfied on that point; for I well recollect that from the firſt attack of the fever I was ſenſible of a dull ſenſation in the left ſide, as if there was ſomething preſſing upon the ſtomach.

'I was attacked with a bilious fever of the worſt kind towards the latter end of Auguſt 1770, when reſiding in the diſtrict called Twenty-four Pagunnahs to the ſouth of Calcutta, about twelve miles inland, from the harbour of Fultah, on the river Houghly, on the banks of the Fultah Creek. Perhaps there is not a more unhealthy ſpot on the globe, in the rainy ſeaſon, than that part of Bengal which is under water daily for hours, during ſpring tides, all that time of the year when nothing is to be ſeen but the trees, villages, and the roads or cauſeways of communication between them. After taking two purges and two emetics with little or no relief, I put myſelf into a boat the third day of my illneſs, and proceeded with all haſte to Calcutta, to the houſe of a friend, where I had every poſſible medical aſſiſtance. I was long confined to my bed with ſmall proſpect of recovery; however, youth and a good conſtitution carried me through, though I was reduced to the moſt deplorable ſtate of emaciation and weakneſs. On quitting my bed in October, the other diſeaſe made its appearance. It was at firſt attended with a ſlow fever and continued dull headache, which laſted ſeveral weeks, and kept me exceedingly low. I was yellow as a duck's foot; and towards mid-day my legs, and even part of my thighs, ſwelled, and became anaſarcous, and the ſcrotum was in like manner affected. I was at the ſame time oppreſſed with extreme melancholy and dejection of ſpirits.

'On

'On the commencement of the cold ſeaſon the fever changed to a regular tertian, but without that copious perſpiration which uſually follows the hot fit: the whole region of the ſtomach became diſtended, and greatly enlarged; whilſt the abdomen remained ſmall and contracted, and the ſpleen itſelf could be diſtinctly felt, which projected and extended from near the pit of the ſtomach, reaching obliquely to my ſhort ribs, in ſhape like a large plantain or cucumber. The anaſarcous affection uſually ſubſided in the night; the water was abſorbed, and went off in prodigious quantities, and ſometimes involuntarily in my ſleep, leaving my legs as lank as before. My phyſicians tried bliſters on the part, and frictions of mercurial ointment, without the ſmalleſt benefit; indeed, I grew rather worſe under the latter; and the diſeaſe being better underſtood by the natives, they recommended me to try the ſkill of a native doctor. This I did, but experienced little benefit from his preſcriptions. As far as I could judge, his remedies were of the antimonial tribe: they conſiſted of pills of a brick-duſt colour, about the ſize of a large pea, and were violently emetic and cathartic; indeed, ſo rough in their operation, that I could not, in my weak and emaciated condition, ſtand the ſhock of them, and was obliged to give them up. I next took a ſtrong infuſion of garlic in vinegar, about a wine glaſsful daily, with ſome little relief, but the diſeaſe would not give way. I alſo tried a preparation of ſteel, by infuſing old iron in vinegar: this remedy had cured ſome of my ſervants, but did me no good. As the cold weather had now ſet in, and the country become perfectly dry, I returned to my ſtation, my fever and ague viſiting me every other day, as uſual.

'The actual cautery is ſo univerſal a remedy for this diſeaſe among the natives, that you ſee few of the Bengaleys who are not marked by it; and I was convinced that ſo painful an operation would not be ſo general, if its good effects were not ſanctioned by experience.

perience. I knew no inſtance of any European having ever ſubmitted to it; but, anxious for health, I was determined to try it. The great difficulty was to find an operator, and it was ſome time before I could find a man to perform it on me. At length I proclaimed a reward of fifty rupees to any perſon who would perform it. The next morning, an old man, with a venerable grey beard, preſented himſelf for the purpoſe, who told me he was an experienced hand; and that, though I was a white man, he was not afraid to undertake my cure in the uſual way. He had all his inſtruments with him, and I conducted him to my habitation with great joy. The tea-kettle was on the chafing-diſh for breakfaſt, and he put his inſtruments in the fire. Theſe were fixed in wooden handles, and were of two ſorts: one reſembled round-headed nails, ſuch as are uſed for fixing on the *tires* of coach wheels; the others were ſomething like thoſe hooks we uſe in India for ſupporting pictures and looking-glaſſes, a little better than an inch in length, and about half an inch broad.

'I was deſired to ſtrip, when he felt and examined me all over the diſeaſed part; and finding that the ſpleen, on preſſure with his fingers, yielded, and then recovered itſelf with a ſpring, like the elaſticity of the crown of a hat, he thence drew a favourable omen. The fact, I conclude, was, that he found it was not become ſchirrous; for he obſerved, that, if it had been hard, he could not anſwer for the cure. He then proceeded to the operation, as follows:—He took out a ſort of awl, ſuch as is uſed by the ſhoemakers of that cōuntry, not pointed like our's, but ſomewhat reſembling the inſtrument uſed by carpenters for making holes in deal fir-boards; and next a ſmall horn. I aſked what theſe were for: his anſwer was, that, with the awl, he ſhould pierce into the ſubſtance of the ſpleen, and with the horn, by ſuction, draw blood from the part as long as it would flow. I ſtarted at this, and

objected the tabid ſtate of my body againſt that part of the operation, and that a mortification would probably be the conſequence. He laughed at the idea, and aſſerted he had done it to thouſands, and never knew a ſingle inſtance of its being attended with any bad effect; but, as he could not make me a convert to his opinion, he propoſed a leſs hazardous method, which I ſubmitted to readily.

'He then took out a kind of lancet, ſuch as the people of the country pare their nails with, and, pincing up the ſkin over the ſpleen, gave it ſeveral ſlices; and then applying the horn to the ſcarification, drew, by ſuction, about a wine-glaſs of blood, in the nature of cupping. When it would no longer flow, he next applied common oil to the parts where he intended to apply his irons: they were heated to a red heat. He firſt took out the one of a hook-like ſhape, which he applied to the left ſide, over the body of the ſpleen, in three places, holding it on a few ſeconds each time, thus:—He next took out a round-headed one, and burnt me in like manner, firſt in the centre of the angle made by the former; then a few inches above the firſt; next on the pit of the ſtomach; and, laſtly, on the right ſide, over the region of the liver.

'The operation was made on my well day. He alſo gave me a lixivium made of ſome ſort of aſhes, to take daily, which I found ſo exceſſively nauſeous, that, after ſwallowing one doſe, I would take no more. I expected my ague fit the next day, but happily it did not recur, and came no more. The whole region of the ſtomach and abdomen became exceedingly ſore and inflamed; nor could I move without turning my whole body for ſeveral days. The glands of my groin and axilla on the left ſide likewiſe grew ſore, inflamed, and hard, which extended up the neck, and down the muſcles of the thigh and leg to my ankle. This gradually ſubſided, and the ſores, from the cauterizing, dried

dried up, and healed without any application whatever; nor was there any ſuppuration or diſcharge worth mentioning. In a few days I found the anaſarca of my legs gradually ſubſide; my ſtomach diminiſh; the ſpleen, before ſo greatly enlarged, retired to its place under my ribs, and could no longer be felt; my appetite returned, and became ravenous; my ſtrength and fleſh daily increaſed; and, in leſs than ſix weeks from the operation, my health was ſo completely reſtored, that, when I removed to another part of the country, about thirty miles diſtant, I walked the greater part of the way with my gun in my hand; and I had become more fleſhy than at any former period of my life: I had likewiſe grown in ſtature three quarters of an inch. In ſhort, the operation was like magic.

'If I am aſked my opinion, I ſhall ſay, that the powerful ſtimulus of the fire applied to the region of the ſpleen gave action to that viſcus, and enabled the abſorbents to take up the obſtructed matter which cauſed my diſeaſe, which was beyond the power of medicine to reach: and, although the Faculty has not been able to ſettle the uſe of the ſpleen, yet it is evident from my caſe, that, when it is diſeaſed, the effects are ſerious to the animal economy. The cautery, though only practiſed upon horſes in this country, is much uſed in India in many diſeaſes beſides this. It is often applied to the head in obſtinate head-aches; to the ſcrotum for the hydrocele; and I know one inſtance of its ſucceſsful application in a confirmed aſcites. A Zemindar of Shahabad I was acquainted with, but whoſe name I now forget, an elderly man, fell into a dropſy after a fever: he was cauterized over the region of the abdomen, and ſoon recovered; and, when I left the country, was in perfect health: and I ſee no reaſon why it ſhould not prove equally beneficial here; at any rate, it is worth trying.—I have now given you all that I recollect on this ſubject, which I hope you will find ſatisfactory.'

This terminates the ſecond *ſection* of the volume. In the third are given a variety of notices, or general information on medical and philoſophical ſubjects.

A valuable account is firſt given of the epidemic which prevailed ſo fatally in Cadiz, and ſome other parts of Spain, during the ſummer and autumn of 1800. It is extracted from the Gazette of Barcelona, and gives a deſcription of the diſeaſe, its riſe and progreſs, various ſymptoms, conſequences, and the means employed for its relief. The ſymptoms were thoſe of the moſt malignant fever. Sometimes, however, they were inflammatory. The remedies which contributed moſt powerfully to the cure were gentle emetics and the cinchona. But no method of cure was abſolutely to be relied on, and the fatality was very great. Of a population of 68,000 in Cadiz, no leſs than 16,000 fell victims to the malady, making not much leſs than a fourth of the whole. The diſeaſe appeared to ſpread by contagion, yet there were not wanting ſuſpicions of its prevailing epidemically only.

Dr. Pearſon makes ſome remarks on Mr. Chenevix's mode of preparing *James*'s Powder by precipitation.* Dr. P. thinks that the identity of the two preparations is not proved by ſufficient evidence, though he does not queſtion the uſefulneſs of Mr. Chenevix's method in practice.

Various ſhort notices are given on the ſubject of cow-pock, and of galvaniſm; but they contain nothing new to our readers.

Amongſt the deaths of diſtinguiſhed practitioners announced, we obſerve thoſe of Dr. *Thomas Fowler*, of York, well known by his *Reports* on the Effects of *Tobacco*, *Arſenic*, and *Rheumatiſm*: Mr. *Joſeph Warner*, a ſurgeon of much eminence, and author of

* See page 403 of our laſt Volume.

treatiſes

treatiſes on Hydrocele and Cataract, and a valuable volume of caſes: and Dr. *R. Pulteney*, of Blandford, who publiſhed different works on botanical and medical ſubjects.

A liſt of new publications terminates the volume.

Art. XXVII. Mirbel's *Memoir on the Anatomy of Vegetables.*

(Continued from page 178.)

'Chap. 6. *Of the Glands.* Have plants glands ſimilar to the glands of animals; that is to ſay, organs fitted to give to the fluids the qualities neceſſary to the developement and the preſervation of the being, by making them undergo new combinations, and by ſeparating the uſeleſs or noxious principles? This queſtion it is not eaſy to reſolve. In a ſubject ſo delicate, matters of fact and of reaſoning are equally obſcure; nevertheleſs it ſeems to me beyond a doubt, that, with our beſt microſcopes, we merely ſeize the moſt groſs part of the vegetable organization. I cannot conceive that the transfuſion of the fluids from one cell to another can ſuffice to modify theſe fluids to the degree of changing them into organized matter, and to render them ſuſceptible of giving new growth and vigour to the plant. Nor ſhould I conceive that the ordinary laws of chemiſtry could alone operate this phenomenon; becauſe, on either hypotheſis, there is no reaſon why induſtry or chance might not diſcover to us the ſecret of Nature: but this is repugnant to reaſon. It appears to me, then, more judicious to admit the exiſtence of ſecretory organs, for the purpoſe of elaborating the fluids. One muſt ſuppoſe that the membranes are not impenetrable to fluids, ſince they dilate themſelves, are developed, and

change their nature; but they muſt neceſſarily modify in ſome way the fluids; ſince theſe, on entering them, become capable of augmenting the membranous tiſſue in all its dimenſions: it is in the membranes, therefore, that we muſt look for the vegetable glands. One might ſuppoſe, with ſome appearance of truth, that the opaque and irregular prominences which border the pores and the openings of the large tubes were glandular bodies. The filaments of the tracheæ, the thickneſs of which much ſurpaſſes that of the membranes, appear alſo to fulfil the ſame functions; and what gives ſtill more weight to theſe probabilities, is, the conſideration that the mucilage, which transforms itſelf into an organized tiſſue, is always found accumulated around the ſmall and large tubes, which are all covered with theſe opaque bodies.

'Chap. 7. OF THE PORES. Theſe are ſmall openings taking place in the membranes; they favour evaporation, abſorption, and the movement of the fluids. There are three ſpecies of them.

'1. The *inſenſible pores*. Theſe are openings which cannot be diſcerned by the beſt microſcopes; yet facts do not permit us to queſtion their exiſtence. The whole vegetable tiſſue is perforated by them. This is proved by the circumſtance of inſenſible perſpiration; and what demonſtrates, at the ſame time, their extreme minuteneſs, is that, when we put an apple or any other fleſhy fruit under the recipient of an air-pump, the dilated air only eſcapes by burſting the ſkin.

'2. *Elongated pores*. Theſe have been obſerved by many naturaliſts, but eſpecially by *Decandolle*, who has given them the name of *corticle pores*. I will endeavour to complete his deſcription, by bringing under the ſame point of view his obſervations and thoſe which I have ſince made. The knowledge of the greater part of the facts which I ſhall expoſe is due to

to his reſearches; but as he has more conſidered the ſubject in its phyſical than its anatomical relations, his labour does not ſuperſede mine.

'The elongated pores exiſt only on the epidermis of the herbaceous parts that are expoſed to the air and the light. If we remove, with addreſs, the exterior membrane of a vegetable, and examine it with a microſcope, we perceive the interior ſides of the cellular tiſſue, which ſtill adhere to the epidermis, and form a ſort of hexagonal net-work; but here and there, inſtead of a hexagon, we obſerve an ellipſis, and the part of the epidermis, circumſcribed in its area, is divided longitudinally. The opening is ſometimes free, ſometimes obſtructed; in the latter caſe I believe it happens from the lips of the pore, being longer than is neceſſary even to cloſe the opening, applying themſelves over one another, and intercepting the light.

'The elongated pores are found commonly on the ſtems, branches, leaves, bractes, and even the herbaceous pericarps. In the herbaceous plants the two ſurfaces of the leaves are covered with pores; in the fatty plants *(plantes graſſes)* they are leſs numerous than in other vegetables. In trees and ſhrubs the inferior ſurface alone is commonly covered with them: the ſtem, when become ligneous, no longer contains them. Theſe pores ſerve the purpoſes of ſenſible and inſenſible perſpiration, and the abſorption of fluids. Each of them anſwers to one cell, which, according as the air is more humid than the cellular tiſſue, or this tiſſue more moiſt than the air, abſorbs the fluids that float in the atmoſphere, or rejects thoſe which the vegetable contains. When the parts become hardened, and the juices contained in the plant have no longer the ſame fluidity, their cells become filled with thickened gum and reſin; which being neither able to eſcape by the pores, nor to return into the general circulation, but becoming perfectly hard, are at length thrown out, when the ſtate of the plant is ſuch as no

longer to allow the epidermis to give way without burſting.

'3. The *glandular pores*. Theſe are openings bordered by thick, opaque, and unequal prominences. They ſerve for the tranſmiſſion and communication of the fluids in the interior, even, of the plant: in fact, we ſometimes obſerve them on the epidermis; but this is extremely rare. There are two ſpecies of glandular pores, the ſmall and the large. The former are of prodigious minuteneſs; they appear to the moſt powerful microſcopes but as ſmall holes made in a ſheet of paper with the point of a needle. Sometimes they are ſcattered, and not numerous; at others they are extremely multiplied, and diſpoſed in regular ſeries, always in the thickneſs and never in the length of the tiſſue. The large glandular pores are merely a modification of theſe: we may even preſume that the union of a number of the ſmall pores of a ſeries produces theſe large pores, the direction of which is the ſame as that of the ſeries. We muſt recollect here what I ſaid before of the porous tubes, the falſe tracheæ, and even the true tracheæ: there are well-marked relations between theſe different tubes, and the plan of Nature is not equivocal.

'Chap. 8. Of the Epidermis. We give this name to the external membrane formed by the ultimate ſides of the cells; or rather the epidermis is only the termination of the cellular tiſſue itſelf.

'To report all that authors have written on this head, would fill a volume. There is no part in the organization of vegetables which has given occaſion to greater reſearches, nor perhaps which has given birth to more errors. The firſt fault is, to have compared it, without reſtriction, with the epidermis of animals. This idea being once adopted, every thing was ſuppoſed to be analogous. The epidermis, it has been ſaid, exiſts in all organized beings; it covers equally the

the naſcent embryo, and the individual arrived at decrepitude; it follows all the ſinuoſities of the body, penetrates into its cavities, and protects the moſt delicate parts: ſo we ſee it in animals, after having given a covering to all the external parts, enveloping even the globe of the eye, reflecting itſelf on the lips, penetrating into the inteſtinal canal, in the noſtrils, and into the auditory paſſage; and in plants, covering the ſtalks, the branches, the leaves, the flowers, and the fruit. The epidermis, they add, is not ſimilar in all parts of the ſame being; it is ſometimes of extreme tenuity, and ſometimes takes on a greater conſiſtence; but in all caſes it is colourleſs and tranſparent. If it appear white on the trunk of the birch-tree, and brown on the young branches, aſh-coloured on the plum-tree, red and ſilvery on the cherry, green on the young ſhoots of the almond and the peach, and grey on the old; the difference is always referable to the colour of the ſubſtances which it covers, in the ſame manner that the white, black, and copper-colour of the European, the Negro, and the Caffre, depends on the colour of the corpus mucoſum. In following this compariſon they ſeem to perceive a new point of ſimilitude in the dilatability of the epidermis of animals and of plants: it yields to all the developements, and extends itſelf as the individual grows; it embraces but a ſmall ſurface in the animal fœtus, but it dilates inſenſibly, and covers a much larger ſurface in the animal when arrived at the adult ſtate. It is thus that the epidermis which covers the grains of vegetables dilates and adapts itſelf to the growth of the tree. The extenſion of this membrane appears prodigious, when we conſider what the gourd was before it bloſſomed, and what the oak once was, concealed in its acorn. But as in certain animals the old epidermis detaches itſelf, and gives place to a new one in a certain ſpace of time, ſo certain vegetables get rid of their old epidermis, and acquire a new one. We may obſerve, that the

the epidermis of the trunk and branches of the plane-tree detaches itſelf by layers, as that of oviparous quadrupeds does.

'Theſe compariſons, though ingenious, are far from being exact in all points: it may even be ſaid that they are founded on imperfect obſervations. To convince ourſelves of this, it is enough to reflect on the definition which has been given of the epidermis of vegetables. This membrane is merely the external union of the cells of the circumference, and it differs only from the membranes which form the other ſides of the cells by the changes which its poſition occaſions. If it be leſs tranſparent, more dry and firm, it is becauſe it is conſtantly expoſed to the influence of light and air, and to the contact of all the bodies which float in the atmoſphere; but it is not really a diſtinct part; and one might ſay, in open ſtrictneſs, that vegetables have no organ analogous to the epidermis of animals. When plants increaſe in ſize, the exterior membrane ſeems to dilate itſelf; but if this membrane acquires greater extenſion, it is becauſe the number of the cells are multiplied at the circumference, as well as in the internal parts; and conſequently the ſides of the cells which compoſe it multiply in proportion, and augment its capacity.

'One objection remains to be anſwered. Why, it will be ſaid, is it ſo eaſy, during the ſpring, to detach the epidermis of the young branches, if in fact it does not form a diſtinct organ? This may be thus explained: all the cauſes which act externally on the vegetable alter its ſurface, and tend to detach it from the internal parts; but this ſeparation becomes more apparent when the vegetation is more vigorous, and the fluids abound in the cellular tiſſue, and diſtend the tubes; for then the diſorganized ſurface, not being able to develope itſelf with the other parts, ceaſes to adhere to them, and often ſeparates in patches, or

decays

decays insensibly. This is exactly what takes place in the spring.

'Moreover, this external layer, which so many causes contribute to destroy, and on which the traces of disorganization may be almost always discerned, is not composed solely of the last mentioned membrane: we find in it the internal part of the cellular tissue, as is evident in the plane-tree, and still more in the cork-tree. All that I have said applies only to the stalks and branches that do not perish in the course of a year; for in herbs, and in the annual parts of ligneous plants, as the leaves, flowers, bractes, &c. the surface does not detach itself from the rest of the tissue.

'But although the epidermis of vegetables does not resemble that of animals, it being certainly formed by the external part of the cellular tissue, it is no less true, that secondary causes modify its nature, and that it becomes, in fact, an organ, the functions of which are very distinct and important. In the infancy of the plant, when all the parts are soft and mucilaginous, it opposes at once the disunion of the nascent organs, and the too powerful action of the fluids: in a more advanced age, when the juices are less abundant, it impedes their too speedy evaporation, and maintains a just balance between the solids and fluids; at all times it defends the plant from the deleterious influence of meteors, and shelters it from the excesses of heat and cold, of moisture and drought; in a word, it protects it against all external causes that might injure it. It serves also for the sensible and insensible transpiration, and for the absorption of the gases and fluids diffused in the atmosphere; and for this purpose is it that it is frequently perforated by very visible pores: I say frequently, because, in effect, it is not a general law; the epidermis of the fleshy or pulpy fruits, for example, having no visible pores: thus, I may add,

add, theſe fruits tranſpire very little, as *Hales* has demonſtrated in his *Vegetable Statics.*

'Chap. 9, and laſt, OF THE ORGANIZING SUBSTANCE, OR CAMBIUM OF *Duhamel.* The following hypotheſis may be offered on the formation and the developement of the cellular and tubular tiſſues.

'All the parts of a vegetable were at firſt mucilaginous and fluid; and it is in proceſs of time only that the texture becomes firm and ſolid. This ſtate of weakneſs is viſible in grain. The embryo at firſt is merely a drop of mucilage, wherein the moſt powerful microſcopes cannot diſcover any organized ſtructure. This ſubſtance has a vitreous appearance. The contact of air and light dries and readily deſtroys it; it is not, to ſpeak properly, a fluid, but an organized ſubſtance, ſimilar in appearance to the white of egg. The organizing ſubſtance forms itſelf during all the time of growth; it depoſits itſelf in that part of the tiſſue where the plant ſhould acquire the greateſt vigour. In the monocotyledons, it is placed around each woody filament; in the dicotyledons, it is at the ſurface of the ſap-wood, and of the medullary canal; thus we obſerve daily the woody filaments of the monocotyledons acquiring an increaſe of volume, whilſt the concentric layers of the dicotyledons multiply, and their medulla becomes changed into wood. The organizing ſubſtance is the more abundant, and renews itſelf with the greater facility, as the individual is more young and healthy; in a more favourable ſituation; and the ſeaſon more propitious to vegetation.

'Inſenſibly, this ſubſtance takes a determinate form. Whether the fluids, by their impulſion, develope the cells and tubes; whether an unknown power acts there alone, and determines theſe developements; or whether, as is probable, theſe two cauſes act in concert, to change the organizing ſubſtance into membranous texture; it is certain that the plant acquires

quires greater volume; that it elongates and thickens from day to day.

'To explain these two phenomena, of thickening and elongation, the action of which is simultaneous, it is necessary to recollect that the force of expansion, acting in a newly-created membranous tissue, is modified by the nature itself of this. This, as we have already seen, is composed of two organic elements; one, the cellular tissue, formed of cells, the diameter of which is nearly equal in all directions; the other, the tubular tissue, formed of the small and large tubes contiguous to each other. Let us suppose, for a moment, that the fluids inhaled by the vegetable were the cause of this dissimilitude in the tissue (and we might the sooner imagine this, as the system is not devoid of probability): let the embryo, if you will, serve us as an example. Let us take the grain before fecundation: it is attached to the parent plant by the umbilical cord; and the internal cavity, the sides of which form the external membrane, is filled by the organizing substance, in which it is not yet possible to discern the traces of organization. But, after fecundation, every thing is changed: the fluids taken in by the vegetable penetrate to the umbilical cord, the organization of which, doubtless, varies in the different species. By favour of the vessels which unite this organ to the grain, the fluids penetrate the organizing substance; and their impulsion being determined by the canals which give them passage, they from thence trace the rout which the fluids afterwards will follow, and determine the order of the future evolutions. Carried with force on the different points, which vary according to the species, they open the longitudinal tubes; and, being afterwards slowly filtered through the sides of these, they are deposited in the organizing substance, and favour the evolution of the cells. In the first case, the fluids are pushed forwards by the force which gives motion to the

the ſap; in the ſecond, they are effuſed, and penetrate the organizing ſubſtance, merely by their tendency to form an equilibrium. Theſe two forces, balancing each other, produce a multitude of intermediate ſhades between the longitudinal tubes and the perfect cellular tiſſue. But this theory is ſtill far from explaining the phenomena of the vegetable organization. Without doubt there exiſt a thouſand other phyſical cauſes, the influence of which we cannot calculate; and above all thoſe cauſes muſt be placed the organizing power, the principle of which is totally unknown to us.

'However this be, the cells and the tubes, being once formed, continue to grow till the thickneſs and hardneſs of the membranes afford an obſtacle to their further developement. During the growth of the membranous tubes, the fluids, carried in thoſe tubes by various combined forces, determine the direction of the elongation by the impulſion which they give to the organic molecules. But the cells are penetrated but ſlowly by the fluids; and, not being ſubject to any force which determines their evolution in one direction rather than another, they grow, and dilate themſelves in every way. It will follow, from hence, if the cells increaſe in number equal to the tubes, that theſe cells will contribute more to the thickening of the plant than its elongation; and that the reverſe will take place in regard to the tubes. But when theſe come to be much multiplied, their number compenſates for the thinneſs of them ſingly; and then they contribute no leſs than the cells to the ſenſible enlargement of plants. Moreover, the maſs of theſe tubes augments inceſſantly in trees; but the cells are not multiplied in the ſame proportion. Laſtly; many cauſes, which I ſhall hereafter develope, contribute to diſorganize the cells, and even to transform them into tubes; ſo that, after a certain time, the maſs of the latter greatly exceeds that of the former.'

ART.

ART. XXVIII. *An Eſſay on the Yellow Fever of Jamaica. By* DAVID GRANT, *M. D.* 8vo. 65 pages. Price 3s. London, 1801. ROBINSONS.

NEITHER the deſcription nor mode of treatment here recommended differs in any material degree from thoſe adviſed by other writers on the yellow fever, and which we have had repeated occaſions to notice. The author conſiders it as an aggravated degree of the remittent endemic fever of Jamaica and the other iſlands, and to be by no means contagious. Like Dr. Ruſh, he ſtrongly recommends blood-letting, and afterwards mercurial purgatives: laſtly, the Peruvian bark in large doſes.

ART. XXIX. *An Examination of the Report of the Committee of the Houſe of Commons on the Claims of Remuneration for the Vaccine Pock Inoculation: containing a Statement of the principal hiſtorical Facts of the Vaccina. By* GEORGE PEARSON, *M.D. F.R.S. Phyſician to the Vaccine Pock Inſtitution, to St. George's Hoſpital, &c.* 8vo. 188 pages. London, 1802. JOHNSON.

TO canvaſs with minuteneſs the claims of an individual where great and unqueſtionable ſervices have been performed, is an invidious taſk, and, to a liberal mind, one of the moſt unpleaſing; ſince the motives to the ſcrutiny can ſcarcely fail to be called in queſtion, whatever foundation in truth it may poſſeſs. Rigid juſtice, however, requires that excluſive pretenſions to reward ſhould be fairly and candidly weighed, leſt injuſtice to others be committed by our very eagerneſs to remunerate diſtinguiſhed merit. This applies, we apprehend, ſtrongly to the queſtion reſpecting

reſpecting the vaccine inoculation. The particular facts in regard to its origin, progreſs, and full inveſtigation, are very imperfectly known to the public at large, and, we believe, even to the members of the medical profeſſion. Hence the judgment that has been formed reſpecting the merits of the individuals who have eſpecially diſtinguiſhed themſelves in the inquiry has been frequently erroneous and partial. A true and ample ſtatement of facts can alone enable us to form a correct opinion, and to give "honour to whom honour is due." Such a ſtatement we have in the work before us.

The author commences his pamphlet by declaring moſt unequivocally his belief that Dr. Jenner's firſt publication was the ſole primary occaſion of all the experiments hitherto inſtituted, and which have led to ſuch happy conſequences. No fact, he obſerves, has appeared in the courſe of inveſtigation, and during the vaccine practice for the laſt four years, to ſhew that ſociety would have been in poſſeſſion, at this hour, of the means of preſerving the conſtitution from a moſt hurtful diſeaſe, by exciting a vicarious complaint of little comparative magnitude, if the diſcloſure had not been made by Dr. Jenner. The committee of the Houſe of Commons, however, do not ſtop here, but vindicate ſeveral claims which are not warranted by the truth of hiſtory. Hence opinions are propagated which deprive other perſons of what is juſtly due to them for their labours and their diſcoveries.

When it is conſidered that the points in queſtion are in great meaſure profeſſional, and only to be judged of accurately on ſcientific principles, it is not to be wondered at that a committee of the Houſe of Commons ſhould be found incompetent to the determination, however upright their intentions, or diſtinguiſhed their talents. Leſt, therefore, their report become a mis-

a miſleading document to hiſtorians of the preſent and future generations, Dr. Pearſon thinks he is but doing his duty in examining ſtrictly the *Report*, and its coincidence and agreement with well aſcertained facts: in order, as he obſerves, 'ıſt. To ſubmit to the judgment of the public, whether or no more honourable and juſt grounds might not have been aſſerted for the remuneration of the petitioner.

'2. In order to offer evidence for the manifeſtation of ſeveral truths, and for the expoſition, perhaps, of ſome errors and miſtakes; and,

'3. With the view of obtaining the opinion of the public, whether or no any credit be due to others for the diſcovery of facts, the detection of ill-grounded aſſertions; and for labour, expenditure of time, and other ſacrifices, in introducing or maintaining the vaccine inoculation.'

In this inveſtigation Dr. Pearſon adopts the diviſion of the ſubject made by the committee themſelves: as to the utility of the diſcovery itſelf; the right of the petitioner to claim the diſcovery; and the advantage, in point of medical practice, and the pecuniary emolument he has derived from it.

With regard to the firſt head, there is little room for diſcuſſion; the experience of at leaſt 200,000 inſtances affords ample juſtification of the grounds of preference of the vaccine to the variolous inoculation. The adverſe caſes recorded are too few, if ever ſo well founded, to influence the general concluſion; yet there ſeems no reaſon to conſider them, with Dr. Jenner, as ſinking into contempt.*

* It has been too much the cuſtom, where unfavourable appearances have enſued in the new inoculation, as extenſive ulceration and the like, to inſinuate that a want of proper caution on the part of the practitioner, and his uſe of a lancet contaminated with other poiſons, was the cauſe of the evil. This was particularly the caſe in a late inſtance, in the neighbourhood of the metropolis, where the child died in conſequence of the ulceration, and where great injuſtice was done to the operator by unfounded inſinuations of this ſort. E.

On the ſecond head, the author quotes the words of the petition itſelf: viz. " Your petitioner having diſ-
" covered that a diſeaſe which occaſionally exiſts in a
" particular farm, among cattle, known by the name
" of the cow-pox, admits of being inoculated on the
" human frame with the moſt perfect eaſe and ſafety;
" and although its ſymptoms are ſo mild as ſcarcely
" ever to prove even a temporary impediment to the
" ordinary courſe of health, yet it is attended with
" the ſingularly beneficial effect of rendering through
" life the perſon ſo inoculated ſecure from the infec-
" tion of the ſmall-pox." With regard to this point, the Report ſtates, " that the whole of the oral depoſi-
" tions, as well as all the written documents from
" abroad, are uniform, and deciſive in favour of Dr.
" Jenner's claim to *originality in its diſcovery.*" It ſubſequently adds, however, " that the diſorder itſelf,
" and its ſpecific property of ſecuring againſt ſmall-
" pox infection, was not a diſcovery of Dr. Jenner's,
" nor of any of thoſe whoſe writings are referred to;
" for in various parts of England, in Glouceſterſhire
" and Devonſhire particularly, there was an opinion
" of that ſort current among the common people em-
" ployed in dairies, which the obſervation of inocu-
" lation for the ſmall-pox tended to confirm. It ap-
" pears not improbable that in ſome very rare inſtances
" this knowledge was carried one ſtep farther, and
" that the cow-pox was communicated either by
" handling the teat, or by inoculation from the ani-
" mal, for the purpoſe, and with the intention, of ſe-
" curing againſt the danger of ſmall-pox: but the
" practice of which Dr. Jenner aſſerts himſelf to be
" the original inventor, *is the inoculation from one*
" *human being to another*, and the mode of transfer-
" ring, indefinitely, the vaccine matter without any
" diminution of its ſpecific power, to which it does
" not appear that any perſon had ever alleged a title."

It

It cannot eſcape the ſight of the attentive reader, the author obſerves, that the kind of diſcovery aſſerted on the part of the petitioner is different from that which is vindicated and declared by the committee: the former claim is that of "having diſcovered that a diſeaſe which occaſionally exiſts among cattle admits of being inoculated on the human frame," with eaſe, ſafety, and ſo as to render the inoculated perſon ſecure through life from ſmall-pox; whilſt the committee aſſert, "that the diſorder itſelf, and its ſpecific property of ſecuring againſt ſmall pox infection, *was not a diſcovery* of Dr. Jenner," but that he was the original inventor of the inoculation from one human being to another.

That the preventive power of the cow-pox, when caſually caught, was widely known, there now needs no proof to be adduced; and it is as certain that the diſeaſe was, many times, purpoſely excited by inoculation directly from the cow. In addition to the inſtances mentioned in the Report, and quoted in our laſt number but one, the following extracts from the manuſcripts of the late Mr. Naſh, ſurgeon at Shaftsbury, ſhew that he had carried his reſearches on the ſubject a conſiderable way, and was prepared to publiſh on the inoculation of it.

Mr. Naſh obſerves, "My principal intention in publiſhing being to recommend to the world *a method of inoculation* that is far ſuperior, in my opinion (and I judge it from experience), to any yet made known; therefore I hope and truſt, although I have no medical friend to enforce it upon the world, that they will give me ſo far credit for my aſſertions as to make the experiment, and then it will ſufficiently introduce itſelf. But if from my being ſo little known they ſhould diſregard it, I cannot but remind them that we had the art of inoculation firſt from Grecian women, who were both ignorant and illiterate; and put them in remembrance of the ſaying of Hippocrates, Μη ονυεειν, &c.

" Upon looking into the ſyſtematic writers, as Sauvages and Macbride, or thoſe who have made catalogues of definitions of diſeaſe, as Linnæus, Vogel, and Cullen, I do not find any diſeaſe mentioned by them at all like the cow-pox.

In numerous places Mr. Naſh repeats his aſſertion, " that thoſe who have had the cow-pox cannot take the ſmall-pox; although ſome people cannot, from the peculiar nature of their conſtitutions, take the ſmall-pox; but that cannot be the reaſon of ſo many perſons in one part of the country, and no other, being incapable of taking the ſmall-pox.

" That it is not more ſurprizing that no one has written on the cow-pox, ſince Dr. Heberden was the firſt who deſcribed the chicken-pox, which had been in the country 100 years.

" When thoſe who have had the cow-pox are inoculated, the arms inflame, but never, or at leaſt ſeldom, form an abſceſs, but ſome hard tumor in the muſcular fleſh.

" How far does the cow-pox agree with the obſervations of Van Swieten, that ' man alone, and not brute animals, can take the ſmall-pox?'

" On cows, the cow-pox uſually appears at firſt in round puſtules, afterwards in ulcers upon the teats and udders, but principally upon the teats. They do not appear to have any ſickneſs before it comes out. Their teats are ſo far injured by the inflammation it produces, that people are frequently obliged to open the tubes through which the milk paſſes with a knitting-needle, or ſome ſuch inſtrument. One cow having it will communicate it to a whole dairy. It continues often a long time upon them, unleſs proper means be employed to cure them, which means are the unguents to the ſore parts. The beſt, I am told, is ſoot and butter. This diſeaſe is not very frequent in this country.—*Cows have the diſeaſe but once.*

" I have

" I have not been able yet to determine whether a perſon who has had the ſmall-pox can receive this diſeaſe.

" In thoſe who have had the cow-pox, the arm on inoculation for ſmall-pox is inflamed to a greater extent than in thoſe who have not had it; but then there is little or no matter in the middle where the puncture was made, nor does it fill in thoſe who have not had this diſeaſe, but ſoon heals and dries."—Theſe obſervations of Mr. Naſh, it appears, were written prior to the year 1781.

Dr. Pearſon goes on to ſhew, that, at the time of Dr. Jenner's firſt publication, he (Dr. J) was ſo far from having diſcovered the principal laws of the vaccine diſeaſe, that he was not even acquainted with its characteriſtic traits. Nor, indeed, could it have been expected, as the amount of his experience at the time was only ſeven caſes, and of theſe four only were from one human ſubject to another.

' In the work above cited of the petitioner, publiſhed in June 1798, in the account of the *four* caſes of inoculation from human ſubject to human ſubject (Inquiry, p. 44), not a ſyllable can I find concerning the day on which matter ſhould be taken, the preſence of areola, nor any cautions; and the deſcription of the pock is ſuch, that, ſo far from inſtructing us to diſtinguiſh it from other pocks, it would rather miſlead. Of the pock it is ſaid, " the puſtules ſo much reſembled on the 12th day thoſe appearing from the inſertion of variolous matter, that an experienced inoculator would ſcarcely have diſcovered a ſhade of difference at that period. Experience now tells me that almoſt the only variation which follows conſiſts in the *puſtulous fluids* remaining limpid nearly to the time of its total diſappearance; and not, as in the diſtinct ſmall-pox, becoming purulent (Inquiry, p. 44). Which (the cow-pock) bears ſo ſtrong a reſemblance to the

ſmall-pox, that I think it highly probable it may be the ſource of that diſeaſe (Inquiry 1798, p. 2.)—Again to the ſame purpoſe (Inquiry, p. 37). I do not cite and refer to the above paſſages for any other purpoſe but to ſhew, that, at this early period of the new inoculation, even the characteriſtic differences between the ſmall-pox and the cow-pock, with reſpect to figure, and above all the *kind of ſcab*, were not then obſerved by the author; nor does he even notice the age of the pocks in the plates, ſo that it is not ſurprizing he gives no information concerning the ſelection of matter.'

This is very different from the deſcription of the diſeaſe contained in the following paſſages, and for which the public are chiefly indebted to Dr. Woodville.

' The general character of the tumor, from the inoculation of the ſmall-pox, is very different from that of the cow-pox; and though " on the ſame day a perſon be inoculated in one arm with the matter of the cow-pock, and in the other with that of the ſmall-pox, yet both tumors preſerved their reſpective characteriſtic appearances throughout the whole courſe of the diſeaſe. This is certainly a ſtrong proof that the two diſeaſes, in reſpect to their local action, continue ſeparate and diſtinct." Woodville's Reports, p. 140, 8vo. May 1799.

" The local tumor excited by the inoculation of the cow-pox is commonly of a different appearance from that which is the conſequence of inoculation with variolous matter; for if the inoculation be performed by a ſimple puncture, the conſequent tumor, in the proportion of three times out of four, or more, aſſumes a *form completely circular, and it continues circumſcribed, with its edges elevated and well defined, and its ſurface flat throughout every ſtage of the diſeaſe; while that which is produced from variolous matter either preſerves a puſtular form, or ſpreads along the ſkin,*

ſkin, and becomes angulated and irregular, or diſfigured by numerous veſicles."

" Another diſtinction ſtill more general and deciſive is to be drawn from the contents of the cow-pox tumor; for the fluid it forms, unleſs from ſome accidental circumſtance, *very rarely becomes puriform*; and the ſcab which ſucceeds is of *a harder texture, exhibits a ſmoother ſurface, and differs in its colour from that which is formed by the concretion of pus.*" —Woodville's Reports, 8vo. p. 146, publiſhed May 1799.

' Theſe characters of the cow-pock, *to wit*, circumſcribed circular elevated eruption, ſurrounded by a red halo or efflorescence; ſmooth ſurface; brown, black, or mahogany and tamarind ſtone coloured long adhering ſcab; are repeatedly noticed in the detail of particular caſes by Dr. Woodville, in his Reports of 1799, pages 38, 39, 40, 41, and 56.

' Dr. Woodville's characteriſtic marks belonging to the cow-pock ſeem now ſo plainly to be underſtood and diſtinct, that one cannot but wonder that they ſhould have eſcaped, above all, Dr. Jenner's notice, who was ſo much intereſted in propagating the real vaccina; yet we find him writing a ſecond treatiſe in the ſummer 1799, and a third in the ſpring 1800, without making any uſe of theſe phenomena to prevent miſtakes, while he labours to ſhew how to avoid error, by enumerating ſeveral ſources of what he calls ſpurious cow-pox; I will not ſay wholly uſeleſsly, but certain I am the end would have been attained more certainly by a deſcription of the cow-pock as it appears in nature, and not its reſembling exactly the ſmall-pox, according to Dr. Jenner.'

It has been frequently inculcated by Dr. Jenner and his followers, that the vaccine matter is not to be relied on later than the 8th or 9th day, and not after the areola around the inoculated part is fully formed:

and he attributes the occaſional ill effects taking place in the inoculated part, viz. ulceration and extenſive inflammation, to an inattention to this point. As this is a matter of ſome moment in regard to practice, and the opinion if ill founded may be of injurious conſequence, we think it right to oppoſe to it the teſtimony of Dr. Woodville, contained in the following letter to the author on the ſubject.

'Dear Sir,

'To the following queſtions, which you have done me the honour to propoſe to me, you will find my anſwer ſubjoined.

1. "Whether you find any, or what difference in the inoculation of the vaccine pock from matter taken between the 8th and 11th day?"

2nd. "Between matter of the 11th and 14th?"

3d. "Between matter taken before the red areola is formed and after it?"

4th. "Between matter before and after the conſtitutional affection?"

'In regard to the firſt queſtion, I can declare that I have very frequently inoculated with vaccine matter taken on the 8th, 9th, 10th, and 11th day after the inoculation; and though I have given the utmoſt attention to the effects of each, I never have been able to diſcover any difference. Ninety-one perſons were inoculated on the ſame morning at the hoſpital with vaccine matter taken on the 11th day; upon all of whom, except three (who did not receive the infection), it produced the regular vaccine pock. Would an equal number, inoculated with matter of the 7th or 8th day, produce a more favourable reſult?

'Reſpecting the ſecond queſtion, I could produce ſeveral inſtances in which the matter taken ſo late as the 14th day after the inoculation has been attended with equal ſucceſs as that taken at any earlier period; however, I have been led to remark, that the virus which this late ſtage of the pock furniſhes is more liable

liable to fail in communicating infection; and, alſo, that its effects frequently proceed more ſlowly than thoſe of the former.

'The third and fourth queſtions may, in my opinion, be comprehended in one; for, when the conſtitutional affection takes place, it conſtantly accompanies the areola, which rarely ſupervenes before the ſeventh, or later than the twelfth day; and, therefore, what has been ſaid relating to your firſt and ſecond queſtions has anticipated my obſervations on the ſubject of your third and fourth.

'It is well known to you that many caſes occur in which proper matter for inoculation cannot be procured from the vaccine pock after the 10th day, cauſed either by the concretion of the fluid, or by a ſecondary inflammation, producing matter more or leſs puriform; but I never uſe any unleſs it be perfectly limpid, and it is only to the matter in this ſtate that the preceding obſervations apply.

'In the printed Report of the committee of the Houſe of Commons, on Dr. Jenner's petition, you find Dr. B. and Mr. K. are of opinion, that what they call ſpurious caſes of cow-pox, "*have ariſen from the uſing of matter taken at too late a period of the puſtule, which may equally happen in inoculating for the ſmall-pox with virus taken at an improper period of maturation.*" Now, Sir, I join in opinion with the laſt part of this citation, and with the laſt part only, which is, that this ſaid ſpurious puſtule may equally happen (or is as likely to happen) in inoculating for the ſmall-pox as for the cow-pox with virus taken at an improper period of maturation; becauſe I am convinced, by numerous experiments in variolous inoculation, that it never does happen. About ſeven years ago it was my practice at the Inoculation Hoſpital, for ſeveral months, to inoculate the patients alternately with variolous matter advanced to its utmoſt ſtage of maturation, and with that in its ichorous ſtate, as ſoon as it could be obtained

obtained from the inoculated part, in order that the reſpective progreſs and effects of each might be daily compared; and though two or three hundred perſons were inoculated with matter taken at the late and alleged improper period of maturation, it never produced any other puſtules than thoſe of the true ſmall-pox.

'The experiments made at the Foundling Hoſpital by the late Sir William Watſon, may perhaps be deemed ſtill more deciſive. He informs us (ſee An Account of a Series of Experiments in Inoculation, p. 17), that he inoculated a number of children with variolous matter, in what he terms "its perfectly concocted ſtate;" and ſays, "It was taken from the inſide of the hand of a ſtrong hard-ſkinned boy, where two or three puſtules remained after the reſt were dry; the matter was perfectly white, and as viſcid as cream." Yet even this matter did not produce one inſtance of a ſpurious puſtule, and to nine children out of ten it communicated the infection.

'I truſt you will judge theſe facts ſufficient to ſhew the fallacy of an opinion, which would not have been noticed here had it not been ſupported by authorities of the higheſt reſpectability.

'I am, your's, &c.

'Ely Place, 9 July, 1802.' '*W. Woodville.*

Upon the whole it is aſſerted by the author, 1ſt. that the facts communicated to the public by the petitioner in June 1798 were either ſuch as were not eſtabliſhed by commonly acceptable evidence (it being too limited for this purpoſe), or that, if they had been eſtabliſhed, they would not have been alone ſufficient to inſtruct or teach the vaccine inoculation. 2dly. That the communications of the petitioner in 1798 propagated ſeveral errors, which muſt have been redreſſed before the new practice could be introduced: ſuch as the violent inflammation ſuppoſed frequently to occur, and the neceſſity for cauſtic applications

tions for its reduction; the ſuppoſed origin of the cow-pock in the *greaſe* of horſes; the human body being again and again ſuſceptible of the cow-pox; thoſe who have gone through the ſmall-pox being commonly ſuſceptible of the cow-pock; all which, the author obſerves, ſubſequent inquirers have ſhewn to be erroneous, and whilſt admitted muſt have operated againſt the introduction of the new practice.

Had not other inquirers ſtirred in the matter, it is obvious that the ſtate of the new practice would have been very different from what it actually is. Merit, therefore, is undoubtedly not excluſively the petitioner's. How far the author is juſtified in the ſcrutiny he has here entered into, and which we have endeavoured to detail with all impartiality, the candid of the profeſſion and the public will determine. His motives, we think, may be very fairly vindicated; and juſtice to himſelf and other zealous proſecutors of the important trials claimed from him what he has done.

Dr. Pearſon obſerves in concluſion, 'Although the above ſeries of facts belonging to the ſubject of vaccine inoculation, if rightly ſtated, will not allow the claims vindicated in the printed Report, yet they will ſerve to eſtabliſh, in my judgment, one equally valid for procuring remuneration. And with regard to the honour of the diſcovery of the new practice, I know not whether what is on the baſis of the hiſtory, as I have ſtated it (for my ſtatement and reaſoning may differ from thoſe of more judicious men), will ſatisfy the petitioner; but this I know, that, in the eſtimation of mankind in general, it is pre-eminent. It is what I aſſerted for Dr. J. to the committee, *to wit*, That the advantages which human ſociety already enjoy, or may hereafter enjoy, from the vaccine inoculation, are fairly owing to his communications to the public in 1798. Nor did I mean to conſider theſe communications otherwiſe than as of the greateſt moment; for I conſidered them as furniſhing ſtrong evidence of the truth

truth of facts which have a principal ſhare in the foundation of the preſent practice. The value of theſe facts no one has appreciated more highly than myſelf, on every proper occaſion. Witneſs, in particular, in what terms I ſpoke of them in my papers already referred to, of 1798 and 1799; the moſt important period of the cow-pock hiſtory. When I ſaid, in converſation to the committee, that I conſidered Dr. Jenner's ſervices as entitling him to the honours of the greateſt inventors in phyſic; when I remember I named, as a parallel, Harvey himſelf, in point of uſefulneſs; and as I now affirm, that, conſidering what he has done, he ought to be conſidered as the fountain from which ſo many beneficial ſtreams have been made to flow; when I allow that all that has been ſubſequently done are derivatives from this origin; and therefore that the author may juſtly aſſert, on the atchievements of any other enterpriſer, in the ſenſe of the terms of Ulyſſes—

Opera illius mea ſunt.

'Finally, when no remuneration was claimed at all, nor any honour but ſecondary, or a mere acknowledgment was hoped for; I ſay, when theſe things are known, perhaps I ſhall rather be blamed by moſt perſons for extravagance of credit, than accuſed of diſparagement. This ground being reſpected as the rightful property of the petitioner, I gave it as my opinion to the committee, that the queſtion of remuneration could not be affected, or at leaſt ought not to be ſo, by any prior inſtances of vaccine inoculation; unleſs it could be ſhewn that the claimant had unfairly appropriated to himſelf the facts of another perſon. I farther allow, it appeared to me that inſtances of vaccine inoculation, antecedent to Dr. J., had been inſtituted; yet being of opinion that ſuch caſes ſhould be judged of liberally, on the ſide of the greater deſerver, I acted accordingly, when I was aſked whether I imagined the

the petitioner learned to inoculate the cow-pock from the perſons atteſted to have inoculated antecedently, that I apprehended the trials were independent of each other (Report, p. 36). It ſhould be noticed, that the inquiry reſpecting the origin of the inoculation was provoked by the queſtions of the committee; and if any inſtances are known, although unfavourable to the claimant's intereſts, the evidence is either bound in duty to relate them, or, if not ſo bound, then the judges, in my opinion, are blameable for propoſing them.

'From the repreſentation of facts in this work, it perhaps will appear, to impartial and judicious perſons in general, that a much more dignified, and more juſt ground of claim, and I ſuppoſe an equally favourable one for remuneration, would have been in terms denoting that the petitioner had propoſed a new kind of inoculation, and actually furniſhed ſome inſtances of the ſucceſs of it, founded upon facts; of which ſome were brought to light and uſe which heretofore had been only locally known to a very ſmall proportion of perſons, and others were diſcoveries of the author: further, that in conſequence of conſiderable ſubſequent inveſtigations, by the author and others, ſuch a body of evidence had been obtained, and ſuch further facts had been diſcovered, as demonſtrated the advantages of the new practice.

'I, by reciting theſe terms, do not mean to dictate; I mean only to explain the principle of what I think the moſt honourable and juſt claim, founded on hiſtory, and by which juſtice might have been obtained by all who had legal expectations of credit.

'This diſcuſſion is perhaps a matter of indifference to ſociety at large; and parties adverſe on ſome points to one another, muſt, if they be good moral men, concur in the exultation of the capability obtained, of with certainty, and I think with eaſe (if governments give aid),

aid), annihilating the ſmall-pox; as I have fully explained in my firſt paper in 1798.

'The preſent new practice now puts a power into our hands which the other day ſtood not within the proſpect of belief. The victory to which we are at this time invited is of immeaſurable value: thoſe of your Rodneys, your Howes, your Vincents, your Nelſons, &c. loſe their ſplendor; all fade before it.

'Society are under the obligation, for this capability, to the author of the petition before us.

Jam labor in fine eſt. Obſtantia fata removit.
Altaque, *poſſe capi faciendo*, Pergama cepit.

'Whether it was exacted in the late inquiry of the legiſlative body that the excluſive claims ſhould be maintained to compaſs the pecuniary reward, I have not legal knowledge to determine; but I have ſome authority for ſtating, that the members of the committee did *not unanimouſly* think ſuch excluſive claims were juſt. I had ſome reaſon to expect that the repreſentation of the committee in their Report would have been ſuch as to have ſatisfied the expectations, not exorbitant, of Dr. Woodville and myſelf; ſuch as would have coſt the petitioner nothing, *to wit*, a mere acknowledgment of ſervices. The moſt unqualified and excluſive claims having been decreed, this bounty, of courſe, has been withheld, either becauſe it was judged to be not owing, or from ſome other motive which I will not name; but it is fitting that I diſclaim any inſinuation of unworthy motives actuating thoſe with whom the judgment was inveſted. Having the advantage of being perſonally known to ſeveral of the members of the honourable committee, I ſometimes flattered myſelf, but vainly, that perhaps conſiderations of friendſhip, though ſlight (for ſuch motives confeſſedly do operate on theſe occaſions), might have had an influence with, probably, more than one—Et tu Brute!—" Miror te amicitiam noſtram—

tram—age, mitto amicitiam: humanitatem, æquitatem, omnium conſuetudinem uſque adeo neglexiſſe, ac parvi feciſſe; ut mihi meas vindemiolas præripere, mearumque vigiliarum fructum præcerpere conareris. Eſtne hominis politi, et communem hominum ſocietatem ſanctam et inviolatam tueri cupientis, partes alienas ſibi ultro arrogare, et vendicare?"

An appendix is ſubjoined containing ſome notes illuſtrative of the general arguments in the body of the work. Alſo, a charge againſt the editor of the *Medical and Phyſical Journal* for calumny, partiality, and miſrepreſentation, in regard to the queſtion of claims: but into this it is not our province to enter.

An engraved coloured plate is given, repreſenting the appearances of the cow-pock and variolous puſtule in their different reſpective ſtages, and where the two are ſo well contraſted, that a ſlight inſpection muſt enable any one to acquire an adequate knowledge of each.

ART. XXX. ZOONOMIA; *or the Laws of Organic Life. By* ERASMUS DARWIN, *M.D. F.R.S. &c.* 8vo. 4 volumes. Third edition corrected. London, 1801.

WE entered ſo largely into the contents of *Zoonomia* at its firſt appearance, that we need do little more than announce the publication of the preſent edition. Conſiderable additions have, however, been made; and the whole has received ſuch emendation and correction as the progreſſive ſtate of the ſcience had rendered neceſſary. The frequent reference to works of a late date ſhew the author to have poſſeſſed a mind of extraordinary vigour hardly to be impaired by age, and of induſtry that has been ſeldom equalled

equalled in the young. As a theoriſt, in the beſt ſenſe of the word, Dr. Darwin will always rank high. His views of living nature were often original and ſtriking, and afforded marks of very ſuperior genius.

Of the new matter here introduced we ſelect the following, on the ſubject of a very painful and obſtinate affection: it will be found highly intereſting in a practical point of view, and ſhews in a ſtriking manner the great importance of accurate anatomical knowledge in the exerciſe of the medical art.

Claſs 1, 2, 4, 12. ‘ *Hemicrania idiopathica.* This diſeaſe is deſcribed by Sauvages under the name of *triſmus doloriſicus*, or *tic douloureux*, in claſs IV. ord. I. gen 2, ſpec. 14, of his elaborate work. But the word *triſmus* is an improper name, as no fixed ſpaſm like the locked jaw exiſts in this malady; nor any *ſtridor dentium*, or convulſion of the muſcles of the face, or trick, attends theſe patients, in the few caſes which I have witneſſed; though this may poſſibly occur occaſionally, as the conſequence of diſagreeable ſenſation, or to relieve it. I ſuppoſe the word *tic douloureux* is a vulgar French expreſſion, like *megrim* in Engliſh.

‘ The cauſe of this afflicting diſeaſe is yet unknown. As it does not appear to ſympathize with a diſeaſed tooth, like the *hemicrania ſympathetica*, deſcribed in claſs IV. 2, 2, 8, I ſuſpect the cauſe to conſiſt in a diſeaſed ſtate of the nerve itſelf, or of its covering or theca, and to reſemble the ſciatica frigida, mentioned below; or to reſemble ſome of thoſe pains, which are ſucceeded or relieved by epileptic convulſions, deſcribed in claſs III. I. I. 8, and that it thus differs from the hemicrania ſympathetica; as in this the cauſe of the diſeaſe, and the ſeat of the pain, exiſt in the ſame place.

‘ One

'One caſe, which occurred to me long ago, of this diſeaſe, was of an elderly gentleman, Mr. W., of Lichfield, who had long loſt all his teeth: the pain began chiefly about the cheek-bone, and extended ſometimes to the ala of the noſe, and to other parts of the face on the ſame ſide. On examining the gums of the upper jaw, there was no ſuſpicion of any ſtump of a decayed tooth remaining in the alveolar proceſſes; nor was there any reaſon to ſuſpect any diſeaſe of the maxillary ſinus; whence this did not appear to be any kind of ſympathetic hemicrania. He was afflicted with it for many years, till his death.

'The caſe of Mr. B., a gentleman between 20 and 30 years of age, whom I was lately concerned for, in this diſeaſe, is well worthy a minute deſcription: I ſhall, therefore, copy a letter which I wrote on his caſe to Mr. Cruickſhank, and an anſwer I received ſome time after from his partner, Mr. Leigh Thomas, who, I hope, will publiſh the ſucceſsful method of cure, with adapted prints.

"To Mr. Cruickſhank.

"*Derby, Dec.* 1798.

"Sir,

"Mr. Boſworth, whoſe caſe I wiſh to remind you of, conſulted you ſome time ago in London, and I believe you then told him that his head-ache was owing to a diſeaſe of the third branch of the fifth pair of nerves. He came under my care at Derby a few weeks ago, and complained of much pain about the left cheek-bone. I ſuſpected the antrum maxillare might be diſeaſed, and, as the ſecond of the dentes molares had been lately extracted, I deſired a perforation might be made in the antrum, which was done by Mr. Hadley, of this town, and kept open for two or three days without advantage. Afterwards, by friction about the head and neck with mercurial unguent, he was copiouſly ſalivated for a few days, and had another tooth

extracted by his own desire; and has, lastly, had an incision made by Mr. Hadley, so as to divide the artery near the centre of the ear next the cheek, hoping to divide a branch of the affected nerve, but without success; and, internally, opiates in large quantity were given when the pain was exceedingly violent: the bark also was used for a time in large quantity, without effect.

"On attending, as much as I could, to his sensations when in pain, he seems to express the commencement of the periods of pain to exist about the part of the left cheek before the middle of the ear; and then draws his finger from thence to the fore part of the lower jaw sometimes, and to the ala of the nose on that side; and at other times he draws his finger from the same part of the cheek before the ear upwards to the orbit of the eye, and from thence downwards, a little way on the nose; and also he complains of pain under his tongue on the same side. The pain returns many times in an hour on some days, and continues many minutes, during which he seems to stretch and exert his arms, and appears to have a tendency to epileptic actions; and his life is thus miserable to himself, and uncomfortable for his friends to witness.

"I write this to you to beg that you will acquaint Mr. Bosworth whether you think you could divide the diseased nerve; as he is willing to undergo such an operation, if you think it practicable, as I believe it to be the only means which promise to cure him, and have, therefore, advised him again to apply to you; and, if you think this can be done with effect, he designs to wait on you in London.

"I am, Sir, &c.

"E. Darwin."

'The following answer of Mr. Leigh Thomas shews the disease to have existed in every branch of the affected nerve.

"*Leicester*

" *Leiceſter Square, May* 1799.

" Sir,

" About the middle of December laſt, you did Mr. Cruickſhank the favour to write him an account of Mr. Boſworth, a young gentleman ſome time under your care at Derby with a painful affection of the nerves of his face. The patient ſoon after came to town in a much worſe ſtate than you deſcribed him to be at that time, as the pain was extremely acute, and almoſt unremitting. Opiates, which he had been in the habit of taking occaſionally, afforded him no relief, though taken to the quantity of ſix tea-ſpoonfuls of laudanum at a time. After paying every attention to the caſe, your ſuggeſtion of the neceſſity of dividing the diſeaſed nerve appeared obvious.

" As the pain was felt more acute in the left ala of the noſe, and the upper lip of the ſame ſide, we were induced to divide the ſecond branch of the fifth pair of nerves, as it paſſes out at the infraorbital foramen. He was inſtantly relieved in the noſe and lip; but towards night the pain from the eye to the crown of the head became more acute than ever. Two days after, we were obliged to cut through the firſt branch paſſing out at the ſupra-orbital foramen: this afforded him the like relief with the firſt. On the ſame day the pain attacked, with great violence, the lower lip on the left ſide, and the chin: this circumſtance induced the neceſſity of dividing the third branch paſſing out at the foramen mentale. During the whole period, from the firſt diviſion of the nerves, he had frequent attacks of pain on the ſide of the tongue: theſe, however, diſappeared on diviſion of the laſt nerve.

" Mr. Cruickſhank performed the above operations; but, being particularly engaged at this time with lectures and other buſineſs, he now gave up the caſe to my management. The patient was evidently bettered by each operation; ſtill the pain was very ſevere, paſſing from the ear under the zygoma towards the noſe

and mouth, and upwards round the orbit. This route proved pretty clearly that the portio dura of the auditory nerve was alſo affected; at leaſt, the uppermoſt branch of the *pes anſerinus.* Before I proceeded to divide this, I was willing to try the effect of arſenic internally; and he took it in ſufficient quantity to excite nauſea and vertigo, but without perceiving any good effect.

"I could now truſt only to the knife to alleviate his miſery, as the pain round the orbit was become moſt violent; and, therefore, intercepted the nerve by an inciſion acroſs the ſide of the noſe, and alſo made ſome ſmaller inciſions about the ala naſi. To divide the great branch lying below the zygomatic proceſs, I found it neceſſary to paſs the ſcalpel through the maſſeter muſcle till it came in contact with the jawbone, and then to cut upwards: this relieved him, as uſual. Then the lower branch was alſo affected, and alſo divided: then the middle branch, running under the parotid gland. In cutting this, the gland was conſequently divided into two equal parts, and healed tolerably well after a copious diſcharge of ſaliva for ſeveral days.

"I hoped and expected that this laſt operation would have terminated his ſufferings and my difficulties; but the pain ſtill affected the lower lip and ſide of the noſe, and upon coughing, or ſwallowing, his miſery was dreadful. This pain could only ariſe from branches from the ſecond of the fifth pair paſſing into the cheek, and lying between the pterygoideus internus muſcle, and the upper part of the lower jaw. The ſituation of this nerve rendered the operation hazardous; but, after ſome attempts, it was accompliſhed, and this day he ſet out for Leiceſterſhire perfectly reſtored.

"I am, Sir, &c.

"LEIGH THOMAS."

A caſe

A caſe in many reſpects reſembling the above, and which was cured by a ſimilar mode of treatment, was given lately in the *Medical Records and Reſearches, vol.* 1.*

ART. XXXI. *Traité des Maladies Veneriennes: A Treatiſe on Venereal Diſorders. By* AND. V. BERLINGHIERI, *M.D., and Profeſſor of Anatomy at Piſa.* Publiſhed by P. P. ALYON. 8vo. 297 pages. Paris, 1800.

THIS work of the Italian profeſſor treats in a methodical, though conciſe, manner of the various ſymptoms of lues venerea and their cure. It contains little that is new in point of doctrine, if we except the following hypotheſis of the author, to account for the occurrence of the conſtitutional affection in certain caſes of chancre and gonorrhœa, and the want of it in others. This difference has generally been attributed to the poiſon not being abſorbed in the latter caſe. But it is difficult to conceive why the matter ſhould not be in all caſes abſorbed, ſince the ſurface of the urethra, as well as that of ulcers, is undoubtedly capable of abſorbing.

'In reflecting on this matter,' the author obſerves, 'I think I can perceive the cauſe of the phenomenon in the lymphatic glands. The immortal *Maſcagni* has demonſtrated, in his work on the abſorbent veſſels, that the lymphatic glands have the property of changing the nature of certain fluids in their paſſage through them. He has ſeen, for example, the lymphatics which abſorb the ſemen containing this liquor previous to their entrance into a lymphatic gland; and, after traverſing this organ, containing only ſerum. On

* See Med. & Chir. Rev. v. 5, p. 469.

examining the lymphatics of the gall-bladder, he found them filled with bile, from their origin to their entrance into the gland; and all of them filled with ſerum on coming out from it: and he made the ſame remark with regard to the lymphatics of the kidney. It is demonſtrated, therefore, that theſe glands have the faculty of producing great changes in the fluids that are obliged to traverſe them. If, therefore, they can change the bile, the ſemen, and the urine, into ſerum, why may they not alter the venereal virus? But it will be aſked, perhaps, if this be the caſe in reality, Why do not ſuch fortunate changes take place conſtantly? I anſwer, firſt, that this property in a gland muſt have its limits. It may eaſily happen, that, either naturally, or by the too great quantity of pus abſorbed, the change may not be brought about completely; 2. the ſtrength of the organs being different in different individuals, the lymphatic glands may be too feeble, in ſome ſubjects, to operate the converſion of venereal pus into pure ſerum.'

'I find another proof of the truth of my hypotheſis in the good effects of mercury for the cure of the pox, and its inefficacy in chancre and gonorrhœa; in the very remarkable difference which Hunter obſerved between the pus of a ſecondary ulcer and that which flows in a gonorrhœa or chancre. It appears that, although the pus may traverſe the gland without being entirely changed in its nature, it undergoes, nevertheleſs, a conſiderable modification; ſince it is deſtroyed by remedies which had no ſuch effect on it before, and conſequently has no longer the ſame characters.'

ART. XXXII. *Hints deſigned to promote Beneficence, Temperance, and Medical Science. By* JOHN COAKLEY LETTSOM, *M. & L.L.D., &c.* 8vo. 3 vols. price 1l. 8s. 6d. London, 1801.

THESE

THESE volumes consist of various detached memoirs on subjects very interesting to humanity, and which place the benevolent views of the author in a very amiable light. Several of them were published many years ago, and received the sanction of the public at the time. The general purport of them is, to exhibit the rules and regulations of the various establishments in this country for humane and charitable uses; and, by pointing out their utility and effects, to incite to an imitation of them in distant parts of the kingdom or elsewhere. An additional interest is given to the different articles by annexing the *silhouette*, or profile, of the individuals who have particularly distinguished themselves in the promotion or support of any benevolent institution.

To the mere medical reader the present collection is not peculiarly interesting. The author's plan was, as he expresses it, 'to trace and point out beneficence rather than science.' A fourth volume, however, is promised, more particularly devoted to objects of medical inquiry.

ART. XXXIII. *Clinique des Plaies recentes, &c.: The Treatment of recent Wounds, distinguishing those where the Suture is useful from those where it is injurious. By* LOMBARD, *Surgeon in Chief, and Professor at the Military Hospital of Strasburg, &c. &c.* 8vo. 263 pages. Strasbourg, 1800.

A VARIETY of useful instructions is here laid down respecting the treatment of wounds, as far as regards the use of sutures, the advantages and abuses of which are pointed out in a clear style. Besides the ligature of bleeding vessels in common wounds, and the stitching of the integuments, the author treats of the ligature of arteries in aneurism;

of the future of the ſtomach and inteſtines, where theſe parts are wounded; of the ligature of the ſpermatic cord; of varices; and of the inutility and abuſe of ligatures in the extirpation of carcinomatous and cancerous tumours of the mammæ, of encyſted tumours, &c.

ART. XXXIV. *Cours de Phyſique Experimentale et de Chimie: Courſe of Experimental Phyſics and Chemiſtry; for the Uſe of the Central Schools, and particularly that of the Côte d'Or. By* PIERRE JACOTOT, *Profeſſor of Phyſics and Aſtronomy at Dijon, &c.* 8vo. 2 vols.

THE only peculiarity of the preſent elementary treatiſe, which is in general well drawn up, is the blending together, in a ſingle work, the ſubjects of *phyſics* and *chemiſtry*. In order to adapt it to the lower claſſes of ſtudents, the author has avoided all geometrical illuſtrations in the body of the work, and has thrown ſuch as appeared to be neceſſary in the form of notes at the end. The plates, which are fifty-nine in number, are bound up ſeparately, in the quarto ſize.

ART. XXXV. *Firſt Lines of the Practice of Phyſic. By* WILLIAM CULLEN, *M.D., late Profeſſor of the Practice of Phyſic in the Univerſity of Edinburgh, &c. &c. A new Edition,* in 2 Vols. *With ſupplementary Notes, including the more recent Improvements in the Practice of Medicine. By* PETER REID. 8vo. price 17s. Edinburgh, 1802.

THE *Firſt Lines of the Practice of Phyſic* is one of the few works, the reputation of which will long ſurvive their author. The theories, indeed, of Dr.

Dr. *Cullen*, like thoſe of his predeceſſors, have already had their day, and are little regarded by the experimental phyſician; but, as the acute obſerver and faithful reporter of facts, he will ever rank in the very firſt claſs of medical philoſophers.

In an art ſo imperfect as that of medicine, improvements and diſcoveries muſt from time to time be made: theſe it has been the intention of the preſent editor to ſupply and annex to the original work; a taſk he certainly has, very creditably to himſelf, accompliſhed. In general, too, he has given the definitions of the different diſeaſes, as furniſhed by the author in his *Noſologia Methodica*. A variety of formulæ are likewiſe ſubjoined, which may aſſiſt the young and inexperienced practitioner. The new ſubject of *cow-pox* is very properly introduced, though but ſlightly treated.

Upon the whole, the editor has performed, we have no doubt, a very acceptable piece of ſervice, in preſenting to the medical ſtudent ſo valuable a work, at a moderate expence, and within a very moderate compaſs. It is hardly neceſſary to remark, that the original work was publiſhed in four octavo volumes.

ART. XXXVI. *The Medical and Phyſical Journal, Nos. 43 and 44, for Sept. and Oct.* 1802. Price 2s. 6d. each. PHILLIPS.

OF the articles which we deem it neceſſary to notice in the preſent numbers of the Journal, the firſt is, 'Obſervations on the Vaccine Inoculation, with an Account of its Progreſs in *Auſtria*, and in the *Eaſt*; by Dr. *De Carro*, of *Vienna*.'—The author ſeems to aſſume it as demonſtrated, that the origin of the cow-pox is to be found in the *greaſe* of horſes; a poſition,

a poſition, we apprehend, that, in the preſent ſtate of facts, will by no means be generally admitted.

Several Hungarian proprietors, the author obſerves, have begun the vaccination of their ſheep, in the expectation of preventing, by this means, the ravages of the *rot* in them. The new practice, it ſeems, has been extended as far as *Bagdad* in the Eaſt.

Mr. *Luſcombe*, of the 2d Dragoons, mentions the good Effects of the *Antimonium Tartarizatum*, as a ſtyptic in reſtraining hæmorrhage from wounds in a ſloughing or gangrenous ſtate. It was applied in ſolution, on lint, in the proportion of four grains to an ounce of water.

'An Addreſs lately delivered to the Medical Society of *Horncaſtle*, on Endemic Cauſes of Diſeaſes; by *C. Harriſon*, M.D.'—The medical hiſtory of particular ſituations and diſtricts is perhaps equally or more an intereſting ſubject for inveſtigation than that of an entire continent or quarter of the world. The cauſes of diſeaſes are very frequently to be found in local circumſtances, and conſequently both prevention and cure are materially intereſted in the inquiry.

The county of Lincoln is of conſiderable extent, and contains a variety of ſoil and ſituation; but it is eſpecially remarkable for its fens, and the influence theſe produce on the health of the inhabitants. The author of the *Addreſs* before us appears inclined to adopt the opinion of Dr. *Mitchill*, of New York, reſpecting the nature and ſource of febrile contagion and miaſmata; he does not appear, however, very clearly to comprehend the hypotheſis of the American profeſſor. Dr. M. does not, as the author ſuppoſes, aſſign the agency, in theſe caſes, to an exceſs of *azote* (or *ſepton*) in the atmoſphere, furniſhed by decaying and putrefying animal and vegetable ſubſtances, but to a combination of this principle with oxygen, forming what he terms ſeptic gas, and which he ſuppoſes to be very ſimilar

to,

to, but not identical with, the dephlogiſticated nitrous air of Dr. *Prieſtley*, or the nitrous oxide of Mr. *Davy*. Nor is the author chemically correct in ſtating, 'that the exceſs of ſepton in the air is prevented by its attaching itſelf to the quicklime of the ſoil, as faſt as it is extricated.' The important part of the Addreſs, however, is the facts adduced as founded on the obſervation of the author, and which will, no doubt, be eſteemed as valuable.

The prevalent complaints upon the *wolds* (the dry and elevated parts of the county) and in the *fens*, differ, according to the obſervations of the author and of others, conſiderably from each other. In the former, conſumptions and calculous complaints appear to be frequent, and are attributed by the author to an oxygenated ſtate of the atmoſphere, and to calcareous impregnation of the wells. In the *fens*, idiopathic conſumption and ſtone are ſeldom obſerved; but in the ſpring and autumn the inhabitants are expoſed to obſtinate agues and remitting diſorders.

'I had not reſided long,' the author obſerves, 'in this diviſion of Lincolnſhire, before I was ſtrongly impreſſed with an idea that the inhabitants upon the wolds were a great deal expoſed to idiopathic conſumptions, and peculiarly liable to calculous complaints. In the diviſion of Holland, and the extenſive marſhes of our county, theſe diſorders are probably leſs known than in moſt *other ſituations* in England. Multiplied experience and numerous inquiries have tended to confirm theſe opinions; and ſince the eſtabliſhment of our Diſpenſary I have been collecting facts to elucidate them. The interruptions to which medical practitioners are continually expoſed muſt plead an apology for laying my ideas before you in a crude and imperfect form. Should my ſentiments be fortunate enough to meet your approbation, I ſhall return to the inquiry with freſh ardour, from a conviction

tion thereby afforded that my obſervations will be uſeful to ſociety.

'Phthiſical complaints are the great ſcourge of this iſland. Pulmonary conſumptions alone are reported annually to deſtroy upwards of twenty thouſand perſons.

'How many of our countrymen are carried off by the other forms of hectical diſorders I am unable to calculate; but their numbers are certainly very great. I would not be underſtood to aſſert that phthiſical complaints of all kinds are more prevalent upon the wolds. My obſervations have been chiefly directed to affections which originate in ſcrophula, and theſe I am inclined to believe are much leſs frequent in the diviſion of Holland than that of Lindſey. When it is conſidered that the victims to ſcrophulous affections are chiefly the fair and the delicate, who have arrived at an age to be uſeful to their friends, and promiſed by ſuperior mental endowments to be a bleſſing to the community, we cannot too much deplore and lament theſe premature deaths.

'The ſituation of this town has afforded me numerous opportunities to inveſtigate more particularly pulmonary complaints, and I can truly aſſert that they are much leſs frequent in the fens and marſhes than in other parts of my circuit. The difference with reſpect to idiopathic conſumption is very great indeed: in ſome parts where I practiſe, it is a very common complaint, and in others it is ſcarcely known to the faculty. Pulmonary conſumptions are certainly to be met with every where; but when I have been conſulted upon ſuch caſes in our marſhes, or the diviſion of Holland, I could either trace them to other ſituations, to neglected colds, or ſome irregularity in the ſuffering perſon.

'Conſumptions from theſe cauſes are occaſioned by accidents to which all perſons are expoſed in their commerce with the world. It is not to them that I refer;

refer; it is to the florid and tubercular conſumptions alone that my obſervations are directed. Theſe are ſo much the effects of prediſpoſition, and are ſo inſidious in their attacks, that it is very difficult, if not impoſſible, to prevail upon invalids to adopt precautionary regulations ſufficiently early to prevent their deſtructive and fatal conſequences. Arguments are inſufficient to alarm the phthifical, and make him alive to his dangerous ſituation. The mind is too confident to be moved by admonition. Nay, when the complaint is fully eſtabliſhed, and has made conſiderable progreſs, the patient ſtill continues free from apprehenſions, and cannot be made to perceive the unavoidable mortality which awaits him. In theſe melancholy caſes there is no ſafety but in flight. The ſufferer muſt either be removed into another air, or little good can be expected. Happily the approach of the diſeaſe may commonly be diſtinguiſhed while the conſtitution is ſo little injured that a cure may be reaſonably anticipated. This, in my opinion, will never be accompliſhed by encloſing patients in rooms filled with medicated air, or a reduced atmoſphere. The effects of ſuch diſcipline are too tranſient to produce any permanent change upon diſeaſed lungs. When immerſion is finiſhed, and the patient returns again to a common atmoſphere, I ſhould even be diſpoſed to apprehend bad conſequences from the ſudden tranſition. If we can fortunately diſcover any diſtrict where idiopathic conſumptions are entirely unknown, we may expect that ſuch patients will derive great benefit from removing to it, and reſiding there till their ſufferings be removed, and good health completely reſtored.

'When I firſt took up the opinion that pulmonary conſumptions were ſeldom produced in the diviſion of Holland, I applied for information, among others, to Mr. Wayet, an old and experienced practitioner at Boſton, who informed me that pulmonary complaints of all kinds were very uncommon in his neighbourhood,

hood, and that ſuch as did occur were milder than in other places. In an extenſive practice of more than forty years, he had ſeldom attended in caſes of peripneumony, or ſpaſmodic aſthma; and meaſles, he obſerves, were ſeldom dangerous in that part of the country.

'This opinion of Mr. Wayet is agreeable to my own experience, and that of ſeveral medical practitioners with whom I have converſed upon this intereſting ſubject. I accidentally mentioned it, a few years ſince, in the company of Mr. Boucherett, Member of Parliament for Great Grimſby, a gentleman of unbounded candour, and a moſt benevolent diſpoſition. He was ſo much ſtruck with the remark, that he took an opportunity to make inquiries concerning it among his Dutch friends, and was informed that conſumptive diſorders ſeldom occurred among them. From the great reſemblance of the ſoil and air in the Batavian republic and the Lincolnſhire fens, I am diſpoſed to believe that the exemption from phthiſical complaints, in both countries, depend upon the ſame cauſes. In the lower parts of this county the air is moiſt and ſoft, when compared with the atmoſphere upon the wolds; the lungs are therefore leſs irritated in it, and in conſequence, as I conceive, tubercles, which lay the foundation of idiopathic conſumptions in other places, are ſeldom met with in theſe ſituations.'

Sheep are ſubject to the formation of tubercles in the lungs, and to die hectical in conſequence. It would be an intereſting and practically uſeful object of inquiry, whether ſheep bred in the wolds or fens are moſt liable to this affection.

'Experiments made for the Purpoſe of proving that the Small-pox is a Diſeaſe common both to Men and Brutes; by *E. Vibourg*, Profeſſor of the Veterinary College of Copenhagen.'—This author aſſerts that

that it is *proved* that the cow-pox defends ſheep againſt the ſheep-pox infection (the *rot?*); and hence may be inferred, he thinks, the identity of the two. He inſerted the matter of a malignant ſmall-pox into the ſides of two puppies. On the 3d day the inciſions had a red and tumid margin, which on the following days diſappeared. On the 7th, red ſpots were ſeen on the naked ſkin of the belly and thighs, which on the 8th and 9th received in their middle a white puſtule, filled with matter *exactly ſimilar to the ſmall-pox.* As, however, the author was unable, on many other trials, to produce ſuch an effect, it is fair at preſent to queſtion the *exact ſimilarity* of the puſtules to the ſmall-pox. Other experiments were made on an ape, a pig, and a lamb. The firſt had ſeveral variolous puſtules. In the pig, on the 7th day, the belly was covered *with many red ſmall-pox, which, having received matter, the next day dried up as uſual.* In the lamb there was not the leaſt eruption. But in all three the common ſymptoms of inflammation appeared at the wound on the 4th and 5th day. In the ape this was more conſiderable, with ſwelling of the axillary glands.

The author aſſerts further, that it is proved, by experiments made at the Royal Veterinary College at Berlin, that the cow receives the ſmall-pox, which, when inoculated on children, produce again the real ſmall-pox. All this, we think, requires further experiments to confirm it.

Some Remarks are made by Dr. *Niſbet* on the Nature and Cure of Cancers, in which, as it appears to us, a great deal of unfounded ſpeculation is employed; but, as the ſubject is to be continued, we ſhall reſerve our obſervations for a future occaſion.

Mr. *Ward*, Surgeon of Mancheſter, continues his Remarks on the *Modus Operandi* of Opium, at a length better calculated to fill a ſeparate volume than to make

make a part of a periodical work. The opinions of this writer we may perhaps recur to, when finally given.

Mr. *Blegborough* offers ſome Obſervations on the Gout, made chiefly, it would ſeem, for the purpoſe of recommending the uſe of his air-pump vapour-bath in the treatment: a few other original communications might be mentioned, which will probably appear to other practitioners leſs novel and important than to their authors.

ART. XXXVII. *A Treatiſe on Brown's Syſtem of Medicine; tranſlated from the German of* H. C. PFAFF, *M.D., Profeſſor of the Univerſity of Kiel. By* JOHN RICHARDSON, *Author of Thoughts on Education.* 8vo., 80 pages, price 2s. 6d. London, 1802. JONES.

THE enthuſiaſm with which the *Elementa Medicinæ* was received on its firſt appearance, has, in this country, very much abated, and is confined at preſent to an inſignificant number of individuals, novices for the moſt part in the ſtudy of the animal œconomy, and ignorant of the phenomena of diſeaſes. Time and obſervation have effectually evinced the inſufficiency of that work as a body of medical doctrine; and the chief advantage which practice has derived from its promulgation is a ſomewhat more extenſive knowledge of ſome of the moſt powerful inſtruments of medicine. This, indeed, is no ſmall merit, but it is almoſt the only one which it has to boaſt of. Abroad, and on the continent of Europe, phyſicians in general ſeem yet to have to learn its real value. The Brunonian ſyſtem, as it is termed, is adopted with all the ardour which the love of novelty ſo naturally inſpires.

Amongſt

Amongſt the German phyſicians who appear to have formed a juſt eſtimate of the doctrines in queſtion, may be reckoned the author of the treatiſe before us. Dr. *Pfaff* has tranſlated the *Elementa Medicinæ* into the German language, and added a variety of notes and illuſtrations of his own. The obſervations here given contain a cool and impartial examination of its principles, and of its claims to originality and merit.

Having ſtated the leading principles of the doctrine, the learned profeſſor proceeds to ſtate the material objections to which it is liable. He particularly objects to the ſimplicity and uniformity aſſigned by the author to the excitability of the ſyſtem and the ſtimulant powers. The whole great doctrine of ſpecific irritability and ſpecific ſtimulus, he obſerves, Brown has quite overlooked; though upon it depends the explanation of the moſt important phenomena in phyſiology; the ſecretions, the various forms of diſeaſe, and the effects of remedies. The contagions are another great claſs of the cauſes of diſeaſe, which, if he has not overlooked, he has yet numbered the maladies which depend upon them with local ones, clearly perceiving that they were totally incompatible with his ſyſtem. But diſeaſes from this ſource are to the full as well entitled to be called univerſal as thoſe which he acknowledges to be ſo. The whole claſs, indeed, of local diſeaſes form an inſurmountable objection to the ſyſtem.

Amongſt the phenomena of diſeaſes irreconcilable with this doctrine may be reckoned the *criſes* which take places in many acute and inflammatory diſorders; where the change from extreme danger to convaleſcence is almoſt inſtantaneous, and totally independent of remedies or external powers. 'A principal idea of this ſyſtem, which is quite falſe, and refuted by experience, is, that there is not a different diatheſis of the various ſyſtems in the different diſeaſes, but that in all ſyſtems the activity of the vital power, the excite-

ment, is either increaſed or diminiſhed. Hence does Brown know but two chief forms of diſeaſes. It is true, he allows that the affection of a ſingle part may be more obvious than that of all the other parts of the body; and, according to him, the particular form of diſeaſe which is determined by ſuch a partial affection ariſes from the noxious exciting powers having acted more immediately on this part, or from this part's being endowed with a greater excitability; but never, maintains he, can the nature of this affection be different from the nature of that of the other parts; never, for inſtance, the excitement increaſed in a ſingle part when it is diminiſhed in general, or *vice verſa*. This is directly repugnant to the nature and form, I may ſay, of every diſeaſe. It ſhould ſeem as if, in moſt maladies, the vital activity of one ſyſtem could not increaſe but at the expence of the vital activity, that is, of the excitement of other ſyſtems; as if moſt diſeaſes depended upon ſuch a change, and in this reſpect as if no pure ſthenic or aſthenic, but only mixed diſeaſes, at moſt, had place. Every paroxyſm of a fever gives us the moſt ſtriking proof of it. In it we ſee the vital power of the vaſcular ſyſtem more active—its excitement increaſed: this increaſed excitement ſhows itſelf at firſt by ſpaſms of the ſmalleſt and more irritable veſſels, and then by oftener and ſtronger contraction of the heart and arteries, by the heat, redneſs, and ſwelling of the ſkin ariſing from that, which increaſed activity of the heart and veſſels does not ceaſe till after a general perſpiration, that empties the veſſels conſiderably. But how much are the other ſyſtems affected at the ſame time! how feeble, and, as it were, dead, is their vital power, the excitement in them! The patients can ſcarcely hold themſelves upright; the voluntary muſcles refuſe their ſervice entirely, tremble with the leaſt effort, and are quite relaxed; the organs of ſenſe more obtunded, the functions of the mind more languid and debilitated. It therefore ſeems as if that principle,

which

which is uſed in a greater quantity for the ſtrengthened and more frequent motions of the vaſcular ſyſtem, were thereby taken away from the other organs, in which the vital power acts, and this, conſequently, rendered inactive in them. It ſeems to be an univerſal law, that, when we ſee increaſed motion at one place, the motion is diminiſhed at another. The excretion by the cuticular pores diminiſhes that by thoſe of the inteſtinal tube, not only by taking away the fluids, but by the veſſels of the inteſtines acting more weakly from the increaſed activity of thoſe of the ſkin. The ſame holds of many other ſecretions and excretions. How often do we find this law, that, when the activity of the vital power appears increaſed in one ſyſtem, it is diminiſhed and weakened in other ſyſtems, confirmed in chronical diſeaſes? Hyſterical perſons and hypochondriacs, with whom the activity of the vital power in the nervous ſyſtem is ſo much increaſed; with whom the imagination, feeling, and the paſſions, are ſo active; with whom the underſtanding, acumen, and wit, often appear in the moſt flouriſhing ſtrength, ſuffer from a weakened activity of the vital power, from a weakened excitement in other ſyſtems, eſpecially in the organs of digeſtion, and in the ſecretory organs of the gaſtric or digeſtive juices, in a painful manner, and the ſyſtem of their voluntary muſcles is often languid and enervated.'

The chief objections to the doctrine promulgated by Brown, therefore, are theſe: 1. The excitability is not, as he ſuppoſes, a power every where equal, but is differently modified in different organs and ſyſtems.

2. The ſtimuli, which act on the excitability, do not affect it entirely in the ſame way, and their effect is various.

3. The relation of ſtimulation is not the only one in which external things ſtand to the excitability.

4. The common natural ſtimuli, upon whoſe influence or operation life and good health depend,

make up but a ſmall inſignificant part of the ſtimuli which act as cauſes of diſeaſe.

5. The remote cauſes of diſeaſe act proximately or immediately not only on the ſolid animated parts, but on the fluids.

6. Increaſed or diminiſhed excitement by no means conſtitutes the eſſence of diſeaſes, which is rather determined by the united ſtate of the ſolids and fluids in regard to motion, ſtructure, and mixture.

7. In diſeaſes, the excitement is ſeldom merely ſtrengthened or merely weakened in the whole ſyſtem, and the diviſion into two principal forms of diſeaſes is by conſequence a wrong one.

Dr. Pfaff next makes ſome remarks on the *Therapeutics* of Brown, and endeavours to ſhew that his repreſentation of the way in which remedies act is far too limited, whilſt ſome of his preſcriptions are really dangerous, and proved to be hurtful by impartial and ample experience. Of this truth, indeed, Britiſh phyſicians have long been thoroughly convinced.

Of the tranſlation it is impoſſible to ſpeak but in terms of diſapprobation. The writer appears neither to underſtand the ſubject nor the language in which he writes, whilſt the author's meaning is frequently obſcured by the awkwardneſs of the ſtyle.

ART. XXXVIII. *A Memoir on the different Species of Potaſh; with ſimple Directions for determining the Quantities of Alkali and foreign Salts which they contain. By* M. VAUQUELIN. (An. de Chym. Frim. an. x.)

IN order to aſcertain the purity of the different ſpecies of potaſh of commerce, a ſtandard for compariſon muſt firſt be obtained. This is done by taking any quantity of potaſh, purified by means of alkohol,

alkohol, in the manner mentioned in a former number of our Review,* and well drying it, and ſaturating it exactly with nitric acid of known denſity, but not too highly concentrated, as this would render it difficult to attain the exact point of ſaturation. The ſame acid is then to be kept as a ſtandard for determining the quantity of alkaline matters contained in the different ſpecies of potaſh of commerce.

For this purpoſe, a determinate quantity of the potaſh to be examined is to be diſſolved in a ſufficient quantity of water, and the ſtandard nitric acid to be added, till the point of perfect ſaturation is attained. In order to know the abſolute quantity of alkali, it is only neceſſary to compare the quantity of acid abſorbed in the operation with that before found neceſſary for the ſaturation of the pure potaſh employed as the ſtandard. By this means we may know with ſufficient exactneſs the quantity of alkali contained either in a pure ſtate, or combined with carbonic acid.

M. *Vauquelin* next points out the means of detecting the other ſaline matters with which potaſh is generally more or leſs contaminated, and which materially affect its intrinſic value in different manufactures. The ſalts moſt commonly found are, the ſulphate and the muriate of potaſh.

In order to diſcover the preſence of the former of theſe, he adds the nitrate of barytes to the ſolution of the potaſh to be examined, previouſly ſaturated with nitric acid: the precipitate which takes place is the ſulphate of barytes, the weight of which enables us to determine, by calculation, the quantity of ſulphuric acid and that of the ſulphate of potaſh; the proportions of the elements of thoſe two ſalts being ſufficiently known. Thus 100 parts of ſulphate of barytes would give about 50, as the proportion of ſulphate of potaſh correſponding to it; and 28 as the proportion of potaſh contained in the latter.

* Vol. 8, p. 287.

For the purpoſe of aſcertaining the quantity of muriatic ſalts, and particularly of the muriate of potaſh, from which hardly any ſpecies is exempt, the nitrate of ſilver is to be employed. This is to be added to the ſolution of a known quantity of the potaſh about to be examined, and of which the alkali has been already ſaturated with the nitric acid, and its ſulphuric acid ſeparated by the nitrate of barytes. The precipitate that forms gives the weight of the muriatic acid contained, and conſequently that of the muriate of potaſh; the proportions of thoſe two ſalts being already known.

Examined in theſe ways, the different ſpecies of potaſh of commerce will be found to differ exceedingly from each other, and conſequently to vary greatly in point of value: this will be ſeen at once in the following *table*, which repreſents all the different matters contained in ſix different ſpecies of potaſh, as found in commerce.

Names.	Real potash.	Sulphate of potash.	Muriate of potash.	Insoluble matter.	Carbonic acid and water.
Ruſſian potaſh 1152 parts.	772	65	5	56	254 = 1152
American potaſh.	857	154	20	2	119 = 1152
American pearlaſh.	754	80	4	6	308 = 1152
Potaſh of Treves.	722	163	44	24	199 = 1152
Potaſh of Dantzic.	603	152	14	79	304 = 1152
Potaſh of Voſges.	444	148	222	34	304 = 1152

If

If it be deſired to know the quantity of iron in potaſh, a point of no ſmall importance in certain manufactures, as thoſe of cryſtal and the like, the mode is, by treating the inſoluble reſidue with the muriatic acid, adding to the ſolution pruſſiate of potaſh, till no more precipitation takes place: then taking about a quarter part of this precipitate, and calcining it, the quantity of oxyd of iron contained in the potaſh will be given.

But beſides the foreign matters found in potaſh, which are pointed out above, there is another which M. *Vauquelin* has not noticed, but which is of ſome importance, eſpecially in regard to the preparation of *magneſia alba*, the properties of which depend greatly on the purity of the potaſh employed in its preparation: we allude to the preſence of lime or calcareous earth, with which potaſh is very generally found to be contaminated. When potaſh containing carbonate of lime (chalk) is uſed for the purpoſe of precipitating magneſia from its combination with the ſulphuric acid (in the ſulphate of magneſia or *ſal catharticus amarus*), the calcareous earth is precipitated along with the magneſia; and when this laſt is calcined for the purpoſes of medicine, the lime is rendered cauſtic, and gives a degree of acrimony to the preparation very perceptible to the taſte, which pure magneſia does not poſſeſs, and which conſiderably injures it as a medicine. The following extract of a letter from Mr. *William Henry* of Mancheſter, to Dr. *Mitchill* of New York, concerning the adulterations of American pearlaſh, will ſet this matter in a clear point of view. It explains to us the difference obſervable in magneſia, as prepared by different chemiſts.

" It is now nearly thirty years ſince my father introduced ſome improvements into the proceſs for preparing magneſia, which were approved by the London College of Phyſicians, and publiſhed in their

Tranſactions. Calcined magneſia being at that time a medicine extremely difficult to be procured genuine, and, conſequently, very little in uſe, my father, with the advice of ſome of the leading members of the college, undertook the manufacture, and has continued it to this day. About four years ago I joined him in the buſineſs, and have made conſiderable improvements in the proceſs (chiefly in the mode of purifying the alkali), which enable us to offer to the public an article of very ſuperior quality. There is one impurity, however, very frequently found in the alkali, which, of late years, has thrown conſiderable difficulties in our way, and which no one, of the almoſt numberleſs experiments I have made, has inſtructed us to ſeparate. This is the carbonate of lime, for which, in ſmall proportion, the carbonate of potaſh has ſo ſtrong an affinity, that no chemical expedient I am acquainted with can wholly detach it. This carbonate of lime may be diſcovered in an alkali in the following manner: mix a ſolution of the beſt American pearlaſh with one of ſulphate of magneſia; waſh the carbonate of magneſia very well, and expoſe it, in open day, to a very ſtrong heat for a ſufficient length of time. The calcined magneſia ought to be perfectly inſipid; but it will often be found to have a very pungent and cauſtic taſte, and, on digeſting it with diſtilled water, a true lime water will be obtained. Now, as the ſame ſulphate of magneſia, with a ſolution of pearlaſh from a different barrel, or a different manufacture, will afford a magneſia perfectly inſipid after calcination, and which imparts no impregnation to water, it is clear that the defect muſt have been in the alkali. The lime contained in carbonate of potaſh cannot, on account of its ſtrong affinity for carbonic acid, exiſt in the ſtate of pure lime, and muſt, therefore, be preſent in a carbonated form. On mixing the alkaline ſolution with one of ſulphate of magneſia, this carbonate is precipitated along with the

the carbonate of magneſia, and the impurity does not become perceptible to the taſte till the carbonic acid is expelled from both by calcination.

" Of late years this defect in pearlaſhes has become almoſt univerſal, and during the laſt eight or ten months we have not been able to meet with any American pearlaſhes fit for the manufacture of calcined magneſia. That the adulteration is not practiſed in this country, I ſatisfied myſelf by remaining ſome time in Liverpool, and trying ſamples from the warehouſes of the moſt reſpectable merchants there, whoſe aſſurances that the aſhes were really as imported I cannot poſſibly doubt.

" The lime, I conceive, is purpoſely introduced into the aſhes by the American manufacturers, not with the intention of a fraudulent adulteration, but with ſome view to the improvement of the article. It is, perhaps, added to the ley, with a view of clearing and ſtrengthening it; and part of it, being chemically diſſolved, will adhere to the clear ley, and even to the dry alkali. Now a very few grains of carbonate of lime in a hundred weight of pearlaſhes will totally unfit them for the preparation of magneſia; and a ſmall quantity of mortar from the brick-work of the ovens will ſpoil a very conſiderable quantity of alkali. We are peculiarly anxious to obtain a ſupply of pearlaſhes, in the manufacture of which every ſource of lime has been carefully avoided. We ſhould even wiſh a careful trial to be made of each barrel, or, at leaſt, of each lot of barrels of one boiling, before the aſhes were ſent to us. This trial might be conducted as follows:—diſſolve four ounces of pearlaſh (we uſe none but the firſt ſort) in four ounces of diſtilled water, and four ounces of ſulphate of magneſia in the ſame quantity of water; mix the two ſolutions, and waſh off the ſulphate of potaſh by repeated affuſions of hot water, which ſhould be quite free from carbonate of lime or ſulphate of lime: dry the magneſia, and calcine

cine it during two hours in a ſtrong fire. If the calcined magneſia, when mixed with a little water, be abſolutely taſteleſs, the aſhes will anſwer. To aſcertain their purity deciſively, digeſt about a dram of the calcined magneſia in half an ounce meaſure, or more, of diſtilled water, for half an hour, ſhaking it occaſionally; filter the liquor, and blow air through it from the lungs by means of a tobacco-pipe; and to another portion add a little oxalic acid. If neither of theſe teſts indicates lime, the magneſia is pure, and the aſhes may be purchaſed.

" To bring within a ſhort view what I have to requeſt, I ſubjoin the following queries.

" 1. By what means does the carbonate of lime gain admittance into the American pot and pearlaſhes?

" 2. If the ſource of it be known, is it one that can be eaſily avoided?

" 3. If the lime be purpoſely added, and this addition be, in general, neceſſary, could we not have aſhes manufactured expreſsly for our uſe, without this admixture?

" 4. Is the exportation of the unlixiviated woodaſhes permitted? and could we not obtain a purer alkali by importing theſe woodaſhes, and lixiviating them ourſelves?

" 5. Would you, or any other perſon you might point out, undertake to make, carefully, the neceſſary experiments on the pearlaſhes intended for us before they are ſent from America? For ſuch aſſiſtance we ſhould be ready to make a liberal compenſation.

" 6. Suppoſing that it is poſſible to have an alkali made purpoſely for our own uſe, how long a time would elapſe between the order from New York to have them manufactured, and their being ſent from an American port?"

MISCEL-

MISCELLANEOUS.

§ 17. *Theory of the Action of the Galvanic Apparatus. By Dr.* John Boſtock (from Nicholſon's Journal for Sept. 1802).

AFTER giving a hiſtory of the principal diſcoveries in galvaniſm, at once perſpicuous and conciſe, Dr. *Boſtock* ſubmits the following ingenious theory, as, in his opinion, explanatory of the various and ſeemingly diſcordant phenomena of this new and curious branch of ſcience.

'The phenomena of the galvanic pile, which at firſt view appear almoſt incapable of being arranged into any ſyſtematic form, may, I think, be all eaſily explained by admitting the truth of the three following *poſtulates*. 1ſt. That the electric fluid is always liberated or generated when a metal or any oxidable ſubſtance is united to oxygen; 2dly. That the electric fluid has a ſtrong attraction for hydrogen; and, 3dly. That when the electric fluid, in paſſing along a chain of conductors, leaves an oxidable ſubſtance to be conveyed through water, it unites itſelf to hydrogen, from which it is again diſengaged when it returns to the oxidable conductor.

'The firſt of theſe propoſitions may be conſidered as almoſt proved by the experiments of Fabroni, Davy, and Wollaſton: the ſecond and third have not been directly eſtabliſhed by experiment, but will not appear improbable when it is ſeen in what a ſimple and eaſy manner they account for all the phenomena hitherto obſerved. In endeavouring to explain the action of the pile, two diſtinct ſubjects of inquiry preſent themſelves: 1ſt. What are the operations carried on at the ends of the wires in the interrupted circuit, as diſcovered by Mr. Nicholſon? and, 2dly. What is the operation carried on in the body of the pile itſelf?

'As

'As the current of the electric fluid appears to paſs from the zinc or plus end of the apparatus to the ſilver end, we muſt firſt endeavour to aſcertain the action which takes place at the zinc end of the wire. This, in fact, appears to be the diſengagement of oxygen in a concentrated ſtate, by which the wire itſelf, when oxidable, is corroded; but which, when the wire is formed of a perfect metal, is diſengaged in the form of oxygen gas. This oxygen appears to be derived from the decompoſition of the water in which the wire terminates, in conſequence of the attraction which the electric fluid poſſeſſes for hydrogen, and its incapacity of paſſing through water without being united to this ſubſtance, according to the ſecond and third poſtulates. The electric fluid, thus united to hydrogen, is carried to the other point of the wire, where, upon entering the oxidable conductor, it is diſengaged in the form of hydrogenous gas, if water be the medium of communication; if a ſolution of a metallic oxyd be employed, it unites with the oxyd, and reduces it. The decompoſition of water is, therefore, effected at the zinc point alone, though the different gaſes which compoſe it are diſengaged at each of the points; and this proceſs will continue even when the points terminate in two different portions of water, as was diſcovered by Mr. Davy, provided that the glaſſes are united by a conductor which is not oxidable.

'This may be conſidered as a general explanation of the firſt ſubject of inquiry: we muſt next proceed to inveſtigate the nature of the operation carried on in the body of the apparatus itſelf. In the conſtruction of the pile there are two points which are eſſential to its action: firſt, that the electric fluid be diſengaged; and, 2dly. that it be confined and carried forward in one direction, ſo as to be concentrated in the end of the apparatus. The firſt object is evidently attained by the oxidation of the zinc, or other oxidable body employed. If both ſides of the zinc were oxidated, the electric fluid would indeed be liberated; but it would be immediately diſperſed, and its effects could not be obſerved. As ſoon, however, as the electric matter is evolved, it is immediately attracted by the hydrogen, which is at the ſame time neceſſarily generated in the fluid which oxidates the metal; and it is by this means conveyed acroſs the water to the ſilver plate, when two metals are uſed; or, in other caſes, ſimply to the oppoſite ſurface of the oxidating ſubſtance. The electric fluid then enters the ſilver plate, and, inſtantly paſſing on to the

contiguous

contiguous zinc plate, arrives at a ſecond oxidating ſurface. The ſame ſeries of events which have been deſcribed is here repeated, except that the electric fluid, being in ſome degree accumulated in the metallic plate, is diſengaged by the ſecond oxidating ſurface, in larger quantity, and in a more concentrated ſtate, than before. By purſuing the ſame train of operations, it is eaſy to ſee how the electric matter will continue to be accumulated in each ſucceſſive pair of plates, until, by ſufficient repetition, it may be made to exiſt in the zinc end of the pile in any aſſigned degree of force.'

The author then proceeds to illuſtrate the truth of his theory by applying it to the explanation of ſome of the moſt remarkable properties of the pile.

'It has excited a good deal of ſurprize,' Dr. Boſtock obſerves, 'that, in the experiments of Mr. Davy and Mr. Cruickſhank, apparatuſes, conſtructed in various ſhapes, and of ſuch very different materials, ſhould be capable of producing the ſame operations. We may, in a few words, enumerate the circumſtances which are eſſential to its formation: 1ſt. an oxidable ſubſtance, one end or ſide of which *only* is to be oxidated; 2dly. a ſubſtance from which the electric fluid generated during the oxidation can abſtract hydrogen: theſe two ſubſtances muſt be alternately arranged, either perpendicularly or horizontally; the firſt ſets the fluid at liberty, the ſecond confines it and conducts it in the proper direction. When we admit the neceſſity of the oxidation of the zinc, we immediately ſee the reaſon why the pile ceaſes to act when perfectly pure water is interpoſed between the plates; why the action is ſuſpended in vacuo, and increaſed by oxygen gas. The hypotheſis advanced above ſhews us how an apparatus may be conſtructed of one metal and charcoal, of one metal alone, or even of charcoal alone, provided a proper fluid be interpoſed to each ſurface. The experiment related by Mr. Davy, where, upon uniting the ends of the pile to two glaſſes of water, by means of muſcular fibres, while the glaſſes themſelves were connected by a ſilver wire, the effects of the ends of the wire were reverſed, admits of an eaſy ſolution. The fluid muſt have been conducted along the fibres ſolely, in conſequence of the moiſture attached to them: when it left the plus end of the pile, it would, therefore, decompoſe part of this water, and paſs along in union with hydrogen to the ſilver wire, where the hydrogen would be diſengaged. The other end

of

of the ſilver wire will then become oxidated, and the hydrogen abſorbed will be evolved at the minus end of the pile.'

The following Communications from a very intelligent Correſpondent, we have no doubt, will gratify our Readers.

§ 18. *Whether Conſumptions are contagious?*

If the importance of a diſeaſe be in proportion to the mortality, there is none ſo important in Great Britain and Ireland as the pulmonary conſumption. It appears that not fewer than one fourth, or at leaſt one fifth, of the deaths of the inhabitants of London are occaſioned by this malady; that, of 20,000 or 25,000, in the London bills of mortality, annually, from 4,000 to 5,000 are in the claſs of conſumptions. It is allowed that theſe bills do not comprehend more than half of the preſent inhabitants, and that the whole number of them is about one million: therefore, 8,000 to 10,000 periſh annually here by this diſeaſe. If England and Wales only contain ten millions of perſons, it follows, then, that 80,000 to 100,000 fall yearly victims to pulmonary conſumption.

There are many facts found out concerning the pulmonary conſumption within theſe twenty or thirty years paſt, which were before unknown. Theſe elucidate greatly the nature of the diſeaſe, and ſerve to palliate, but do not ſenſibly diminiſh, the mortality. Extenſive experience ſhews but little variety in the ſtate of the lungs in this diſeaſe; for, almoſt uniformly, *tubercles* appear to be the foundation of all the other morbid ſtates, viz., *vomicæ*, condenſed cellular membrane, water in the cavities of the cheſt, and adheſions of the lungs to the ſides of the coſtal pleura. To which add (though not ſo frequently preſent) condenſed lung, abſorption or waſting of this viſcus, enlarged neighbouring glands, water in the pericardium, enlargement of the heart, opening of the foramen ovale. The ſeat and growth of tubercle, and its gradual change into vomica, were firſt inveſtigated by the late ingenious Dr. Stark. Many facts of the hiſtory have been gradually developed by different perſons, and ſome parts of the treatment are better underſtood, as well as the bad effects of various things more accurately marked. The further inquiry into the hiſtory is the moſt likely means of diſcovering effectual remedies.

Theſe

Theſe obſervations are preliminary to the notice of one particular queſtionable fact; viz., the *infection* of conſumptions. This we ſeldom hear of in this country, notwithſtanding the continual occurrence of theſe diſorders. However, many practitioners entertain the opinion that ſuch infection does exiſt. The proofs are taken, 1ſt. from children of the ſame parents being ſucceſſively attacked by this diſorder; 2dly. from the attendants or companions of conſumptive patients being in like manner ſeized. We have no inſtances of perſons catching the diſorder merely from ſleeping in the ſame bed, wearing the ſame clothes, living in the ſame room, handling the ſame things, all which had been in uſe by the patients. Now, there is no known infectious diſorder by effluvia which does not communicate diſeaſe much more frequently, by far, than happens in the preſent caſe: but in the ſame family we find the ſame diſorders ſucceſſively attack them, and which confeſſedly are not infectious; as inflammation, angina, the cholic, hyſteria, enteritis, eruptions, rheumatiſm, gout, &c. Conſidering theſe circumſtances, it ſeems not probable that phthiſis pulmonalis is infectious in this iſland, but occurs in the ſame family from ſimilarity of conſtitution and expoſure to the ſame occaſional cauſes. Yet it does not ſeem ſafe to pronounce, that, in all circumſtances whatever, phthiſis pulmonalis is exempt from being infectious, even in this country; and the ſame may alſo, perhaps, be ſaid of intermittent fevers. In hot climates, it is not doubted that intermittents are infectious; and in ſome of theſe climates there is undoubted evidence of what are called conſumptions being highly ſo. Whether ſuch conſumptions are of the ſame nature in other reſpects with our's, we are not certain; but there ſeems no reaſonable doubt that they are ſimilar. In proof of the contagious nature of theſe diſeaſes in the Levant, and in Italy, the obſervations of many travellers might be cited, of the beſt authority. I give the following, from a friend lately returned from thoſe parts.

"All over the Levant the opinion is prevalent of the contagious nature of conſumptions; not only among the natives, but alſo the phyſicians. I knew ſome practitioners, of real ſcience, who conſider it as beyond diſpute, and uſe a ſyſtem of precaution, and regulate their practice accordingly. Their conviction on this point is perfect. The diſorder is communicated eaſily to ſuch as nurſe or aſſociate with the infected. It has rendered many families extinct.

Two

Two ſuch families fell under my obſervation. One perſon, a girl, caught the infection from an old garment lined with fur, which had been purchaſed and worn only for a few days. She communicated the diſeaſe to her ſiſter, who nurſed her; and to her brothers, who lodged in the ſame houſe; all of whom, in the ſpace of two years, died conſumptive. Another family, removing to India, lodged in a houſe wherein a woman had lately died of a conſumption. They caught the diſeaſe; and of *ten* perſons, the number of which this family conſiſted, *nine* ſoon died of conſumption.

" This diſorder is confined to the inhabitants of towns in the Levant, and to ſuch as are of Greek origin only; for I could not hear of this diſeaſe among the Turks, or the peaſantry of the country. This diſeaſe, too, is much more prevalent and fatal in the Ex-Venetian Greek iſlands than on the continent of Greece: perhaps becauſe the natives of theſe iſlands have qualified themſelves, by their vices and intemperance, to become its eaſy victims. There its ravages among the ſuperior order of citizens are truly aſtoniſhing (conſidering the mildneſs of the climate), and greater even than in England."

In the Venetian ſtates there is a law which directs the clothes, and even furniture, of thoſe who have died of conſumptions to be burnt.

G.

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§ 19. *Two Obſervations, of Apertures into the Cavity of the Thorax.*

1. After an inflammation of the lungs, empyema took place. The pus made its way externally, and immenſe quantities were drained off by the external opening. The patient died in ſix months; and after death the lung of the diſeaſed ſide was found full of tubercles, but *not*, as expected, *contracted* into a ſmall bulk.

2. Another caſe was, a perforation, by a ſtake, into the cheſt, and death took place in twenty-four hours' time. On opening the thorax the lung in that perforated cavity was found partly adhering to the ſide, and *not contracted*. G.

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§ 20. *On the Uſe of the new Metals in the Practice of Phyſic.*

Of the twenty-one metals now known, only one half are employed as medicines; viz., ſilver, mercury, tin, iron, lead, copper, zinc, antimony, biſmuth, and arſenic. As theſe are all powerful remedies, it is rather ſurpriſing that trials have not been made of the reſt. Gold, indeed, has been uſed, but I think not fairly. Platina, cobalt,

cobalt, nickel, manganeſe, uranite, titanite, tellurite, molybdæna, tungſten, chromite, have not, that I have heard, been uſed at all. Two of them, which I have tried (platina and manganeſe), differ totally in their effects.

PLATINA.

The oxide of platina, precipitated by ſal ammoniac from its ſolution in nitro-muriatic acid, is, when dried, of a yellow and orange colour. This oxide, in doſes of one to three grains, occaſioned vomiting, in the ſame manner as tartrite of antimony. In ſmaller doſes I found no ſenſible effect, except their ſometimes purging and creating ſickneſs.

MANGANESE.

I uſed two preparations of this metal: the *white oxide* precipitated from its muriatic ſolution by fixed alkali; and the phoſphate of manganeſe, precipitated from its muriatic ſolution in water by phoſphate of ſoda, which affords a light blue powder when dried.

1. The white oxide was borne on the ſtomach without ſickneſs, or vomiting, or pain; in full as large doſes as can be borne of precipitate of ſulphate of iron by fixed alkali; viz., in doſes of ten grains, or more. As far as my trials extended, the effects were much the ſame as thoſe of oxide of iron.

2. The phoſphate of manganeſe was borne in the ſame doſes as the above, and with the ſame effects.

The other new metals I have not exhibited: but it may be uſeful to mention, that the beſt (becauſe taſteleſs and leaſt irritating) preparation of copper, is phoſphate of copper, precipitated from ſulphate of copper by phoſphate of ſoda. And phoſphate of ſilver, precipitated from nitrate of ſilver by phoſphate of ſoda, is a moſt admirable hydragogue purgative in dropſies. A grain or two is ſufficient, and is better than Boerhaave's Lunar Pill.

Phoſphate of iron is a better medicine than ſulphate of iron, and is prepared by precipitating it from the ſulphate by phoſphate of ſoda. It may be given in doſes of from ten to fifteen grains.

In fact, moſt of the phoſphates of metals are the preferable preparations. G.

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§ 21. *On the Means of detecting the Preſence of Lead in Wines. By* O. Reinecke. [From Ann. de Chym., No. 114, an. ix.]

The *liquor probatorius* in moſt frequent uſe for detecting the adulteration of vinous liquors with lead or its oxyds, is the ſolution of the ſulphure of potaſh (hepar ſulphuris). Many cauſes, however, may render this proof equivocal; and it is not concluſive unleſs the preſence of the metal is proved by its complete diſoxygenation, the oxyd being reduced to the metallic ſtate.

Inſtead of this teſt, M. *Reinecke* adviſes the following, as a more certain means of detecting the adulteration in queſtion. He firſt propoſes the trial with the pruſſiate of potaſh or ſoda, which, it is well known, decompoſes all the metallic ſolutions, by double affinity; the pruſſic acid quitting its former baſe, to form with the metallic oxyd an inſoluble pruſſiate, coloured according to the nature of the metal employed: thus, with gold, it forms a precipitate of a yellow colour; with lead, of a dirty white; with copper, a browniſh red; with iron, a dark blue, or the ſubſtance called pruſſian blue.

To a portion of ſuſpected wine was added ſome cryſtallized pruſſiate of potaſh diſſolved in diſtilled water: the mixture was expoſed to the air for twenty-four hours, and no change being perceptible in the liquor, excepting a few atoms of pruſſiate of iron, readily cognizable by its blue colour, it was fair to infer, that the wine in queſtion contained no particle of lead.

As a counter-proof, a ſingle drop of a ſolution of acetite of lead was added to another portion of the ſame wine, and to the mixture a drop or two of the former ſolution of pruſſiate of potaſh: a precipitation inſtantly took place of a dirty white colour, being the pruſſiate of lead; a ſufficient proof that, had the wine originally contained the ſmalleſt particle of this metal, it muſt have been detected.

To theſe proofs with the alkaline pruſſiate was added that with the muriatic acid: this acid ſeparates lead from its ſolutions under the form of a difficultly ſoluble muriate; but it neither diminiſhed the tranſparency of the wine, nor effected any other viſible change in it. It affords another proof, therefore, in addition to thoſe above ſtated, of the freedom of the wine, of which the trial was made, from any impregnation with the metal in queſtion.

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§ 22. *Extraordinary Inſtance of univerſal Anchyloſis.*

M. *Percy*, a ſurgeon in chief in the French army, read a memoir, lately, to the *National Inſtitute*, on the affection mentioned above. After

After having mentioned ſome other inſtances of a ſimilar kind, related by different authors, he proceeds to recite the caſe he himſelf witneſſed, and which was that of an officer, who had contracted in the field a gouty rheumatiſm that deprived him in ſucceſſion of the uſe of his fingers, hands, and feet; and, after exceſſive pains, deſtroyed all power of movement, even of the lower jaw, and bereaved him alſo of ſight. He paſſed ſeveral years in an elbow chair, without obtaining a moment's ſleep, notwithſtanding the largeſt doſes of opium. Being reduced at length to ſucking only a little broth or wine through the very ſmall opening which was naturally between the teeth, two of the inciſors were removed, which enabled him to ſpeak with more freedom, and to ſuck liquid through a reed, and even to ſwallow a ſmall quantity of minced meat.

The body of the miſerable ſufferer was a ſort of ſtatue or living corpſe, and formed, as it were, a ſingle piece: all the bones were ſoldered together. Notwithſtanding, he was lively in converſation; his phyſiognomy was full of expreſſion, and even of hilarity. The muſcles of his face had acquired a ſingular degree of mobility; they were continually in action, either to ſupply the want of geſtures, which he was unable to make, or in order to contract the ſkin, and drive away inſects that accidentally lodged on it. The patient at length died, and the ſkeleton is preſerved in the collection of the *Ecole de Medecine*.

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§ 23. *Singular Caſe of voracious Appetite.*

The ſame gentleman related a caſe of extraordinary voraciouſneſs of appetite, and to which he gives the apt name of *Polyphagia*. A young man, from the neighbourhood of Lyons, named *Tarare*, and who early in life attached himſelf to a troop of ſtrolling jugglers, employed himſelf in ſwallowing flints, enormous quantities of broken victuals, baſkets full of fruit, knives, and even living animals. The moſt alarming ſymptoms endured in conſequence were not ſufficient to overcome this dangerous habit, which became at laſt an imperious neceſſity.

Enrolled, at the commencement of the late war, in one of the battalions of the army of the Rhine, he ſought for the neceſſary ſupply of food around the moveable hoſpital. The refuſe of the kitchen, the remains of the meſſes, the rejected matters, corrupted meats, did not ſuffice him. He often diſputed with the vileſt animals their

filthy and diſguſting meal: he was perpetually in ſearch of cats, dogs, and even ſerpents, which he devoured alive. He was obliged to be driven by force, or threats of puniſhment, from the dead room, and the places where the blood drawn from the ſick was depoſited. It was in vain attempted to cure his ravenous appetite, by giving him fat, acids, opium, and even pounded ſhells. The diſappearance of a child of ſixteen months old, gave birth to horrible ſuſpicions of him, and he fled. Five or ſix years afterwards he was admitted into the infirmary of Verſailles, in a conſumptive ſtate, which ſucceeded his horrible appetite, and which, he pretended, aroſe from a ſilver fork lodged in the inteſtinal canal. He ſoon after died.

C. Teſſier, chief ſurgeon of the infirmary, had the courage to examine the body, in ſpite of the abominable odour which exhaled from it. No fork was diſcovered. The ſtomach was of extraordinary capacity; the inteſtines were ulcerated, and remarkably diſtended, and the gall-bladder was of a very large ſize.

Tarare was ſmall in ſtature, flabby, and weak: his countenance had nothing ferocious in it. When he had faſted for a time, the ſkin of his belly could be almoſt wrapped around him; and when full, he appeared as if dropſical. A thick vapour iſſued in torrents from his mouth; all his body ſmoked; the ſweat flowed abundantly from his head; and, like other voracious animals, he ſlept during the time of digeſtion.

The memoir of *C. Percy* was terminated by an expoſition of the internal organization of the ſubjects affected in this way, ſeveral inſtances of which he adduced from authors. All of them, he obſerves, died before they attained their fortieth year.

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§ 24.

An inſtitution for inveſtigating the nature and cure of CANCER has lately been planned in London, and ſome progreſs made towards its eſtabliſhment. The nature and views of this excellent inſtitution will appear from the following extracts from the printed proſpectus that has been circulated, and which we are happy to contribute to the publicity of.

'In the long train of diſeaſes to which, from a variety of cauſes, mankind is ſubject, none are in their courſe attended with equal miſery as thoſe which are denominated CANCERS, whatever part of the body may be the ſeat of them.

'Theſe occur far more frequently than is generally ſuppoſed, and a ſtate more pitiable than that of perſons afflicted with CANCERS, in

in any rank or ſituation in life (all being alike ſubject to them), it is impoſſible to imagine; and their ſufferings are aggravated by the inſufficiency of medicine to afford any proportionate relief. For, ſetting aſide the benefits that are obtained by the uſe of thoſe means which give a ſhort reſpite to the anguiſh ſuch patients endure, I believe there is no phyſician, nor any medical man of reputation, who would heſitate to allow, that his knowledge of any method by which this diſeaſe may be prevented, or even its progreſs retarded, is very defective; and that, when it is confirmed, he does not entertain a hope of curing it. In fact, little is at preſent known of a CANCER, but that it is an incurable diſeaſe; and after a great number of trials and attempts to diſcover a method of cure, medical men ſeem reduced to a ſtate of deſpair, as if both ſcience and art were exhauſted, or were unequal to the difficulties they have to encounter.

'But it having pleaſed God that remedies, or methods of cure, ſhould be diſcovered for many diſeaſes which were once thought incurable, we ought to hope that one may at length be found out for CANCERS; and, with ſuch hope, it is the duty of medical men to exert their faculties for the inveſtigation of the nature and cauſe of them, and the diſcovery of ſome method, or medicine, by which they may not only be relieved, but abſolutely cured.

'The trials of particular medicines, and the experiments which have been formerly made, ſeem not only to have been imperfectly conducted, but their reſults have been ill recorded. In the preſent enlightened ſtate of medicine both theſe things would certainly be rectified, and new experiments might be ſuggeſted to obtain this moſt deſirable end. But the duties of general practice perpetually interrupt the attention of thoſe who have capacities and inclinations to purſue this object with the energy it requires. It is therefore propoſed to form an INSTITUTION for the reception of patients who have CANCERS, not merely with a deſign of affording an aſylum to the diſtreſſed, but profeſſedly for the purpoſe of experiment and diſcovery. It may alſo be reaſonably preſumed, that, in this reſearch for the cure of CANCERS, a more accurate knowledge of, and more efficacious methods of curing, ſome other diſeaſes will be diſcovered. Nor ought it to be paſſed in ſilence, that every medical gentleman to whom this Inſtitution has been mentioned has expreſſed his approbation of it, and his determination to ſupport its eſtabliſhment.

'Should ſuch patients be gratuitouſly admitted for a certain number of months, and if not cured returned to their friends, where they might be occaſionally attended by the medical gentlemen of this Inſtitution; or be afterwards ſuffered to ſtay in the houſe, on paying

a ſtipulated ſum for their ſupport and maintenance, there would be many contingent advantages.

'When ſuch a houſe ſhall be eſtabliſhed, it is propoſed that there be a reſident apothecary, competent, by his integrity, his intelligence, and his induſtry, to put in execution all the plans which it might be thought expedient to inſtitute; and that a phyſician and ſurgeon ſhould be elected not for life, but for three, five, or ſeven years, to whom ſome acknowledgment ſhould be made for the extraordinary attention, it is hoped, they will pay to the deſign of the Inſtitution. But it is expected that no experiments ſhall be made, nor new medicines tried, without the approbation of the medical committee.

'An appeal (with any reaſonable claim) has never been made in vain to the public benevolence; and though this, like all other public inſtitutions, muſt reſt upon the ſupport it may receive, and though the expenſes may be great, yet in the contemplation of a ſubject in which every future generation will be intereſted, the time of its eſtabliſhment ſeems of leſs importance, provided a beginning be made. It is probably, therefore, moſt eligible to collect firſt ſuch a ſum as will defray the common expenſes of the Inſtitution; and then to leave its extraordinary expenſes to the humanity and benevolence of thoſe who may approve of it, or who may feel the ſame ſentiments exciting them to its ſupport, as thoſe have who now wiſh to eſtabliſh it: but this muſt be the ſubject of future conſideration.'

A liſt of the COMMITTEE for conducting the affairs of the Inſtitution, as far as relates to its finances and œconomy, is then given, and which conſiſts of a number of the moſt reſpectable characters. The conduct of the medical affairs is under the direction of a *Medical Committee*, formed of profeſſional gentlemen of the firſt rank.

In order to collect all that is at preſent known on the ſubject of *Cancer*, and to extend the circle of probable information, it is propoſed that a correſpondence ſhall be opened with medical men of ſcience and experience, not only in the United Kingdom, but in the colonies, and every part of the continent.

The information particularly wiſhed for may be collected from the following liſt of *Queries*, which has been circulated amongſt the members.

QUERIES.

QUERIES.

I. What are the diagnoſtic ſigns of a CANCER?

II. Does any alteration take place in the ſtructure of a part preceding that more obvious change which is called CANCER? if there does, what is the nature of that alteration?

III. Is CANCER always an original and primary diſeaſe, or may other diſeaſes degenerate into CANCER?

IV. Are there any proofs of CANCER being an hereditary diſeaſe?

V. Are there any proofs of CANCER being a contagious diſeaſe?

VI. Is there any well-marked relation between CANCER and other diſeaſes? if there be, what are thoſe diſeaſes to which it bears the neareſt reſemblance in its origin, progreſs, and termination?

VII. May CANCER be regarded at any period, or under any circumſtances, merely as a local diſeaſe? or does the exiſtence of CANCER in one part afford a preſumption that there is a tendency to a ſimilar morbid alteration in other parts of the animal ſyſtem?

VIII. Has climate, or local ſituation, any influence in rendering the human conſtitution more or leſs liable to CANCER, under any form, or in any part?

IX. Is there any particular temperament of body more liable to be affected with CANCER than others? And if there be, what is that temperament?

X. Are brute creatures ſubject to any diſeaſe reſembling CANCER in the human ſubject?

XI. Is there any period of life abſolutely exempt from the attack of this diſeaſe?

XII. Are the lymphatic glands ever affected primarily in CANCER?

XIII. Is CANCER under any circumſtances ſuſceptible of a natural cure?

XIV. Does CANCER ever attack the human frame previouſly to the age of puberty?

XV. Is there any branch of manufacturers either more or leſs ſuſceptible of the diſeaſe?

XVI. Does CANCER ever attack ſeafaring people?

XVII. Are widows or virgins more ſuſceptible of the diſeaſe than married women?

XVIII. In examining the bodies of thoſe who die from confirmed CANCER, what are the appearances of the uterus?

Adjourned.

M. BAILLIE.

Thomas Denman, *Secretary.*

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§ 25. *A newly obſerved Morbid Poiſon, infectious by Effluvia.*

We have heard much within this laſt year of an epidemic ophthalmia among our troops in Egypt. This diſeaſe, we were diſpoſed to believe, was occaſioned by the irritation of particles of ſand or duſt blown into the eyes, already ſcorched by the rays of the ſun in that climate: but it now appears, from the accounts of medical men returned home, that the ophthalmia ſeized numbers of men on board of ſhips on the coaſt of Egypt, who had not been aſhore, and who had had no communication with thoſe ill of the ſame complaint; and further, ſhips with men on board ſo affected, on their arriving at Malta, Italy, Gibraltar, &c., ſpread the ophthalmia wherever they had intercourſe. It does not appear that there is any conſtitutional diſorder at the firſt attack, but it ſometimes occurs ſubſequently, when there is much pain, which is generally the caſe.

A few years ago in London there was a very generally-extending endemical complaint of the eyes only: was that infectious? The Egyptian ophthalmia, according to the accounts we have received, ariſes from miaſmata in the firſt inſtance, particularly, as is ſaid alſo, ſoon after the overflowing of the Nile, but ſubſequently by contagious effluvia.

We have already had occaſion to notice ſome remarks on this ſubject by an ingenious obſerver,* and we may hope that our knowledge of it will be increaſed by the communications of other obſervers, of whom there are ſeveral that have had ſufficient opportunities.

If the diſeaſe in queſtion be ultimately proved to be contagious by effluvia, pathology, in our times, will have been enriched by the knowledge of *two newly-obſerved morbid poiſons:* viz., the *vaccine* and *ophthalmic* infections.

* See at page 31, Mr. *Edmonſton's* Account of an Ophthalmia in Egypt.

§ 26.

§ 26. *A curious Piece of Hiſtory belonging to the Cow-pock.*

The celebrated Dr. FAUST, well known for his great exertions to execute a plan, by the union of all the ſtates of Europe, for extirpating the ſmall-pox, is now in London, principally in order to introduce a newly-invented bed for ſick people and fractured limbs. This phyſician has publiſhed, in a German pamphlet, a paper ſent to him by Mr. *C. G. Steinbeck*, containing a reference to a well known journal, the *Allgemeiné Unterhaltangen*, for the year 1769, printed at Gottingen, in which there is a paper on ſome remarkable paſſages in *Livy*, giving an account of diſeaſes at once affecting men and cattle. 'One of theſe diſeaſes (ſays *this writer in* 1769) correſponds to our cow-pox, which is well known to affect milch cows, and to infect the milkers, who, it is true, never die of it, although it is often a painful diſeaſe; but then thoſe who have had this diſorder are well pleaſed, and congratulate themſelves on it, becauſe they never take the ſmall-pox after it.' *Fauſt* exclaimed (after the example of the mathematician on a diſcovery in another ſcience), Ευρηκα!!

We find the German journals of late are full of intelligence of the cow-pox among the cows in different parts of Germany, Jutland, &c.; mentioning, at the ſame time, that perſons who got the diſeaſe from cattle above forty or fifty years ago are now alive, and knew the fact of their being incapable of taking the ſmall-pox.

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§ 27. *Vaccine Inoculation.*

The printed report of the Houſe of Commons profeſſing merely to have publiſhed *extracts* from the minutes of the evidences examined, and a part only of that of Dr. Pearſon having been given to the public, we have been requeſted by a correſpondent to furniſh the whole of Dr. *Pearſon*'s evidence. In complying with this ſolicitation it is not our intention to make any remarks: the faireſt way for the parties intereſted, and the moſt proper conduct for us to purſue, is to ſuffer the evidence to ſpeak for itſelf; eſpecially as Dr. *Pearſon*'s "Examination of the Claims," &c., juſt publiſhed, and of which an ample account will be found in another part of the preſent number of our Review, is likely to afford the requiſite explanation.

In our next we purpoſe giving the ſecond, and only other, evidence of Dr. Pearſon, on the 15th of April.

"Dr.

" Dr. Pearſon's firſt examination (the Honourable Admiral Berkely in the chair), agreeably to the ſummons dated Lunae, 5. 10 die Aprilis 1802. (From a tranſcript by the committee-clerk, taken from the minutes of the Houſe of Commons.)"

" Are you converſant with the vaccine inoculation?"

" A. Yes: I have been acquainted with the practice ſince Jan. 1799. I alſo think it is but juſtice to Dr. Jenner, to ſtate, that I am acquainted with the practice of inoculation of perſons for the ſmall-pox, who, on good evidence, were ſaid to have gone through the cow-pox ſince June 1798: the reſult of which was, that they could not receive the ſmall-pox infection."

" Was it from the communications of Dr. Jenner, or any other ſource, that you derived your knowledge of the vaccine inoculation?"

" A. In the firſt inſtance, from Dr. Jenner; afterwards I got information from other ſources." [Letters delivered in.]

" Do you imagine that the information contained in thoſe letters aroſe from Dr. Jenner's publication of his diſcovery, or from a previous knowledge of vaccine inoculation?"

" A. I imagine they were independent of each other."

" Did you ever hear that Dr. Jenner had communicated his diſcovery to Mr. John Hunter, many years previous to this correſpondence? and is it not known, that in his lectures, ſome years before his death, he mentioned it publicly?"

" A. Not the practice of inoculation; but that Dr. Jenner had acquainted him that perſons who had had the cow-pox could not take the ſmall-pox, and that nobody had been known to die of the cow-pox."

" Had you any other communications with the Rev. Herman Drew, beſides the letters delivered in, upon the ſubject of inoculation?"

" A. None that I think relate to the queſtion."

" Does Mr. H. Drew lay claim to the diſcovery of inoculation with the vaccine matter from one human being to another?"

" A. No;

"A. No; that is excluſively* Dr. Jenner's."

"Do you know when the facts ſtated in the correſpondence which you delivered to the committee actually took place?"

"A. Only that they took place, in all probability, earlier than the year 1798."

"On what do you ground that opinion?"

"A. Becauſe immediately upon the publication of Dr. Jenner's work, in 1798, I wrote to the gentlemen who furniſhed the information, namely, the Rev. H. Drew, Dr. Pulteney, Mr. Dolling, and Mr. Down of Bridport. They immediately communicated their caſes of vaccine inoculation, without appearing to be acquainted with Dr. Jenner's work."†

"Have you reaſon to think that Dr. Jenner, previous to the publication of his firſt work on vaccine inoculation, was at all acquainted with the facts contained in the correſpondence delivered in?"

"A. I have ſaid, I apprehend the parties all performed their inoculations independent of each other." [Withdrew.]

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§ 28. *An Account of a new, pleaſant, and ſtrong Bitter, and Yellow Dye, prepared from the Stem and Root of the* Xanthorhiza Tinctoria, *or* Shrub Yellow Root: *by Dr.* Woodhouſe, *Prof. of Chem. in the Univerſity of Pennſylvania.* (From New York Med. Rep. v. 2.)

"This ſhrub is called Xanthorhiza, from the Greek words Ξανθος, *flavus*, and Ῥιζα, *radix:* it is denominated *ſimpliciſſima* by Marſhall, from the ſuppoſed ſimplicity of its ſtem. L'Heretier has given it the name of *apiifolia*, as he thought the leaves reſembled thoſe of parſley or celery; and it was formerly called *Marboiſia tinctoria*, by Mr. William Bartram, in honour of M. de Marbois, an encourager of the ſcience of botany, and from its qualities as a dyeing drug.

"As the ſtalks of this plant ſometimes bear five branches, the ſpecific name of *ſimpliciſſima* cannot be very proper, and its leaves do

* Dr. Pearſon, in his book lately publiſhed, finds this is not ſtrictly correct; for vaccine inoculation from the human ſubject had been previouſly inſtituted.

† The dates were ſubſequently obtained, and are printed in Dr. Pearſon's work juſt publiſhed.

not

not ſufficiently reſemble thoſe of parſley or celery to be called apiifolia. Xanthorhiza tinctoria is a more expreſſive name than any it has yet received.

" The Xanthorhiza tinctoria is a native of North Carolina, and was firſt brought from that ſtate into Pennſylvania, about forty years ſince, by Mr. John Bartram, then botaniſt to the king of Great Britain, and planted in his garden at Kingſeſs, in the county of Philadelphia, where it has continued to flouriſh in a moſt luxuriant manner. The ſtems reach the height of three feet, and are generally ſomewhat thicker than the barrel of a gooſe quill. The root is from three to twelve inches long, and about the diameter of a man's little finger, ſending off numerous ſcions, ſometimes two feet in length, by which means it ſpreads conſiderably. The leaves are placed alternately, having long petioles and pinnated, terminating in an odd one; the folioles ſeſſile, and lacerated deeply on their edges. The peduncles are branchy, and are placed immediately beneath the firſt leaves, from which cauſe the flowers appear before the leaves, very early in the ſpring.

" *The Characters of the Fructification according to the Linnæan Arrangement.*

" Cl. Pentandria Polygynia.

" Cal. Perianthium, none.

" Corol. Petals five, equal, lanceolate, ſpreading, open, and flat. The nectarium forms a little crown in the centre of the corolla, compoſed of five little bipartite leaves, one of which is placed between the baſe of each petal.

" Stam. Five, ſlender and ſhort, placed about the middle, at the baſe of each petal. The anthers roundiſh.

" Piſt. Germina numerous, uniting at their baſe, becoming ſmaller upwards, forming as many ſubulated incurved ſtyles, each terminated by an acute ſtigma. Theſe germina become as many capſules, of a figure nearly oval and compreſſed, enlarging upwards, and diverging from each other; all united below on the general receptacle; each containing a ſingle roundiſh ſeed.

" The ſtem and root of the Xanthorhiza are of a bright yellow colour, and poſſeſs a ſtrong bitter taſte.

" The following experiments were made with different parts of the plant, to aſcertain its virtues.

" 1. Pump water, digeſted on the ſtems and roots in coarſe powder, received a yellow colour, and taſted bitter.

" 2. Water,

" 2. Water, repeatedly boiled on the ſtems and roots, extracted the greateſt part of the colouring matter.

" 3. The ſtems and roots, diſtilled with a gentle heat, produced ſome water, which contained none of the qualities of the plant.

" 4. One pint of alkohol, digeſted on half an ounce of the bruiſed roots, contracted a deep yellow colour, and poſſeſſed an intenſely bitter taſte.

" 5. This alkohol being filtered, gave, by ſpontaneous evaporation in the open air, two ſcruples of a yellow reſinous extract.

" 6. One pint of alkohol and water, digeſted on half an ounce of the bruiſed roots, received a pale yellow colour.

" 7. This diluted alkohol, evaporated to dryneſs, left thirty grains of extractive matter.

" 8. Water, added to the tincture of the ſtems and roots in alkohol, rendered it muddy.

" 9. Pieces of ſilk, cloth, flannel, cotton, and linen, were boiled in a decoction of the powdered ſtems and roots. The ſilk received a bright yellow colour, the cloth a drab, the flannel a pale yellow, and the cotton and linen would not take the colouring particles.

" 10. This ſilk, cloth, and flannel, were expoſed twenty days to the action of the ſolar light, in a temperature varying from 105 to 115 deg. of Fahrenheit's thermometer, alongſide of other pieces of the ſame kind of ſtuffs, dyed with fuſtic, ſaffron, and turmeric.

" In a few hours the light and oxygen of the atmoſpheric air altered all theſe colours a little, except that of the cloth. The colouring matter of the turmeric firſt diſappeared, then of the ſaffron; that of the Xanthorhiza ſtood nearly as well as the fuſtic.

" 11. Pieces of ſilk were boiled in the following mordants: ſolution of alum, alum and potaſh, or ſulphate of potaſh and alumine, cream of tartar and alum, or tartrite of alumine and ſulphate of potaſh, ſaccharum ſaturni and alum, or ſulphate of lead and acetite of alumine, and the murio-ſulphate of tin. They were then dyed with the Xanthorhiza, and received different ſhades of yellow. Other pieces of ſilk were alſo boiled in the ſame kind of mordants, and dyed with quercitron bark, weld, fuſtic, turmeric, ſaffron, and the roots of hydraſtis canadenſis, the ſimple tincture of which imparts to ſilk a rich and ſuperb yellow colour. The whole were expoſed to the light of the ſun, in atmoſpheric air, twenty-ſeven days, in a temperature varying from 100 to 115 deg. of Fahrenheit. The colouring

ing matter of the turmeric and ſaffron was the moſt fugitive. The ſilk dyed with quercitron bark, with ſaccharum ſaturni and alum, for a mordant, ſtood beſt. The others contracted a brown caſt, except the weld, which had faded.

" 12. A portion of the roots grated, mixed with a ſmall quantity of water, ſtrained through a rag, and evaporated to dryneſs in the ſhade, produced a yellow extract, which was mixed with a portion of alum.

" 13. Paper was coloured yellow with this preparation, and green by mixing it with Pruſſian blue. This paper was expoſed to the light of the ſun in a temperature of 105 deg. of Fahrenheit, alongſide of other paper, ſtained in a ſimilar manner with gamboge. In a few hours the yellow and green of the Xanthorhiza were conſiderably altered for the worſe, while thoſe of the gamboge were not affected.

" 14. The leaves, ſtem, and roots, ſeparately burnt in the open air, yielded aſhes, to which warm water was added. The water being filtered, and evaporated to dryneſs, produced a ſmall quantity of potaſh. Some ſilicious and aluminous earth remained on the filter.

" 15. A handful of the leaves, expoſed three hours to the influence of the ſolar light, in forty ounce meaſures of pump water, gave twelve drachm meaſures of oxygen gas, which devoured nearly three equal meaſures of nitrous air.

" 16. A green tincture of the leaves in alkohol was expoſed in a dark place, and to the light of the ſun, in atmoſpheres of oxygenous, azotic, and hydrogen gaſes. That which was placed in the oxygen gas, in the light, in a few days contracted a yellow and afterwards a red colour. No alteration was produced in the reſt.

" 17. A ſtem, two feet long, was placed in a ſolution of nitre, and of the ſulphates of iron and copper. All theſe agents were taken up by the abſorbents of the plant, and depoſited in the leaves. The iron was detected by placing the ſtem in the diſtilled acid of the unripe fruit of the Dioſpyros virginiana, or perſimmon tree; the copper, by putting it in ammoniac, when the leaves were turned of various ſhades of brown. The preſence of the nitre was ſhewn by ſetting fire to the leaves, when they burnt like paper ſoaked in a ſolution of this ſalt.

" It appears from theſe experiments, that the Xanthorhiza tinctoria contains a gum and reſin, both of which are intenſely bitter, the reſin being more abundant than the gum. From the ſmall quantity which

which is obtained from half an ounce of the ſtem and root by one pint of alkohol, it is probable that part of it is carried off in the vapour of this volatile fluid.

" It imparts a drab colour to cloth, and a handſome yellow to ſilk; but the dye will not take on cotton or linen, as the colouring particles have no elective attraction for theſe ſtuffs. The different mordants which were uſed altered the ſhade of the yellow colour conſiderably, but did not appear to render it more permanent. While every ſhade of this elegant colour can be obtained from that truly valuable dyeing drug, the quercitron bark, I think it will always ſuperſede the Xanthorhiza, and every other native yellow dye, among which that of the hydraſtis canadenſis may juſtly be reckoned the moſt ſuperb.

" The watery extract of the grated roots, mixed with alum, and added to Pruſſian blue, was firſt uſed by Mr. James Batram for colouring plants, and the plumage of birds, of a green colour. The green is far more lively and elegant than that made with gamboge and Pruſſian blue, which is generally uſed for painting in water colours, and ſtands well in the ſhade, but ſoon contracts a dull colour when expoſed to a bright light and to a high temperature. Various ſubjects coloured by this green, one year ſince, and incloſed in a book, are as lively at this time as when firſt painted.

" The leaves, expoſed in pump water to the light of the ſun, afforded air of a high degree of purity. This air ariſes from the decompoſition of the carbonic acid which is contained in moſt water. The carbon of this acid unites to the leaves, while its oxygen is ſet at liberty. As no pure air can be obtained from theſe or any other leaves in diſtilled river, rain, or lime water; and as, from numerous experiments, I never could find that they purified common atmoſpheric air when incloſed in it, and expoſed to the light of the ſun, unleſs it contained fixed air, I believe the opinion which is almoſt univerſally adopted, that they give to man oxygen gas in any conſiderable quantity, and that he yields them *azotic* air in return, to be totally falſe.

" The colour of the leaves appears to reſide in a reſin, which is altered by the combined action of light and oxygen, by either of which, ſeparately, it cannot be affected. Vide experiment 16.

" Nitre, the ſulphates of iron and copper, ammoniac, and the gallic acid, were taken up by the abſorbents of the ſtem, and carried to the leaves. The hyperoxygenated muriate of potaſh is an excellent agent to demonſtrate theſe veſſels in the leaves of ſome trees, as thoſe

of

of the Franklinia alatamaha, Corylus avellana, &c., when they become of a deep brown colour. When a leaf of Liriodendron tulipifera was impregnated with nitre, and ſet on fire, it burned principally along what have improperly been called the nerves of the leaf, but which are now known to contain abſorbent veſſels.

" As the Xanthorhiza tinctoria is a ſtrong and pleaſant bitter, and very nearly allied to the celebrated columbo root, it promiſes to become a valuable addition to the American Materia Medica. It is preferable to all our native bitters. The bark of the root of the Ariſtolochia ſipho, or Dutchman's pipe, which is often made uſe of by the inhabitants near Pittſburgh, is a weak aromatic bitter. The root of the Actea racemoſa, black ſnake-root or rich weed, is a nauſeous bitter. The bark of the root of the Liriodendron tulipifera, tulip or poplar tree, is more pungent and aromatic than bitter. Chironia angularis, or centaury; Gentiana ſaponaria, or blue gentian; Veratrum luteum, or devil's bit; the red berries of Cornus florida, or dog wood; and the bark of ſeveral ſpecies of Salix, or willow, are weaker bitters than the yellow root.

" I have often uſed the powdered ſtem and root of the Xanthorhiza with ſucceſs, in the doſe of two ſcruples to an adult, in many of thoſe diſeaſes in which bitters are recommended, but generally combined with other remedies. It is a medicine which ſits eaſy upon the ſtomach, and produces no diſagreeable effects."

Correſpondence.

OUR anonymous Correſpondent T. P. will obſerve, that we have commenced a regular notice of the Journal he mentions. We have not room, however, for the retroſpective plan he intimates; nor, were we to adopt it, is it probable we ſhould altogether meet his wiſhes; as in our ſelection of articles we ſhould neceſſarily be guided rather by our own ideas of their novelty and importance than by the feelings of the reſpective writers.

Another Correſpondent obſerves, that he has been unable to procure in the ſhops either the *oleum hyoſciami* or *ol. cajeput*, two articles recommended as a remedy for tooth-ache in a former number of our Review (vol. 8. p. 291); and he requeſts ſome information on the ſubject. We can only ſay, that the recipe was extracted from a foreign work, where the articles in queſtion are perhaps officinal, which is not the caſe in this country. Allowing, however, the compoſition to be as efficacious as ſtated, there appears no reaſon to attribute any conſiderable ſhare of the virtues to thoſe articles.

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ART. XXXIX. *Commentaries on the Hiſtory and Cure of Diſeaſes. By* WILLIAM HEBERDEN, *M. D.*

(Continued from page 151.)

THE diſeaſes next in order are, *Deſtillatio, Devoratio, Diabetes, Diarrhœa, Digitorum Nodi, Dolor, Dolores Vagi, Dyſenteria.*

On the ſubject of *Deſtillatio*, or Catarrh, the author obſerves, that two perſons, for other purpoſes, took at leaſt a drachm of Peruvian bark every day for many months, during all which time they were free from that ſort of catarrh, which is commonly called a cold in the head, to which they had both of them been remarkably ſubject.

An inſtance is related of a child who ſwallowed two round pieces of copper money, and paſſed them by ſtool twenty-nine days after, without their ſhewing any ſign of ruſt or corroſion; nor were any peculiar ſymptoms excited by their preſence in the body.

The opinions of this experienced phyſician with regard to diabetes, a ſubject that of late has engaged a good deal of notice, deſerve to be recorded. "The

urine in diabetes," Dr. H. remarks, "is ſaid to have a honey-like ſweetneſs; but in my judgment, formed upon the moſt perfect caſes of this diſtemper, it ought in moſt perſons rather to be called inſipid: in one, joined with a fever, I found it ſweetiſh. An extraordinary flow of urine has been remarkable for ſome months; and yet, when meaſured, has not been found to exceed the drink, which, on account of the thirſt, is more than theſe patients are uſually aware of. However, towards the end of the diſtemper, the urine will conſiderably ſurpaſs the liquor, ſo as to be double of what they have taken. This deviation of the urine from its natural ſtate will continue ſometimes more, and ſometimes leſs, for three or four years, and has returned after ſeeming to be entirely gone.

"Though the exceſs of urine is the circumſtance which has been chiefly attended to, yet, in every caſe of this kind which I have ſeen, the thirſt has been firſt in time, and by far the moſt diſtreſſing, and what ought rather to have given name to the diſtemper; but, in truth, they ſeem both to be rather ſymptoms of the breaking up of a conſtitution, and have hardly ever been known but in very infirm and old people, in whom age or diſtemper had ſo far injured ſome of the parts neceſſary to life, that death muſt ſoon have enſued, whether the patient made too much water, and was waſted in a diabetes, or made hardly any, and was bloated in a dropſy. It is not very improbable, that ſome trivial circumſtance determined the body to take on one of theſe two diſeaſes rather than the other, and that the removing of either of them would do but little towards ſaving the patient's life.

"If the diabetes be, as I am inclined to think, the ſymptom of ſome other diſtemper, and not the diſeaſe of any of the organs which ſecrete the urine, the only uſeful remedies will be thoſe which are directed to cure the principal malady, of which the diabetes is

but an appendage. Accordingly it has appeared to me, that little good was to be done with alum, the Peruvian bark, elixir of vitriol, Briſtol water, lime water, a repetition of emetics, or any other medicines, which were principally calculated to recover the kidneys from their ſuppoſed relaxed ſtate to their natural tone and firmneſs."

Diarrhœa, the author remarks, is not always to be conſidered as a diſeaſe, as there are inſtances of its being habitual and harmleſs, at leaſt for ſeveral years, and returning upon the ſlighteſt occaſions for the greateſt part of a perſon's life. He has ſeen an inſtance of a diarrhœa's continuing for three months at the rate of twenty times a day, without any apparent injury to the health. In ſuch caſes it is difficult, and perhaps hardly deſirable, to effect a cure of what is not ſo much a diſtemper as an inconvenience, which may be more than compenſated by the benefit which it does to the general habit of body. Where the appetite fails, however, and the fleſh waſtes, no time ſhould be loſt in checking the purging.

On the ſubject of *Dyſentery,* the author's remarks are highly judicious, and in uniſon with the ſentiments of the moſt experienced and enlightened phyſicians of the preſent day. "Since this diſtemper," he obſerves, "is commonly bred in camps by foul air, and is in ſome degree contagious (yet I have ſeldom ſeen two dyſenteric perſons in the ſame houſe), too great care cannot be taken in regard to cleanlineſs and freſh air, both for the ſake of the patient and his attendants. The uſual methods of treating this malady with which I was acquainted often failed of procuring eaſe, and of preventing its ending fatally in a ſphacelus of the bowels. It appeared that in a dyſentery ſome hurtful humours had been depoſited in the inteſtines, which threw them into ſuch diſorderly agitations as to hinder the expulſion of what had offended them. The readineſs with which the neutral

ſalts (eſpecially the cathartic ſalt) purge, their power of controlling and quieting the irregular motions of the bowels, and their aptneſs to ſtay upon the ſtomach without being vomited up, made me conceive hopes that they would make a valuable addition to the anti-dyſenteric medicines. At firſt I gave only one dram every ſix hours, which evidently ſoothed the pains very ſoon, and before it had any effect as a purge. In other caſes larger quantities were given, and with the double good effect both of affording preſent eaſe, and afterwards of entirely removing by effectual evacuations the cauſe of the diſorder.

" After the danger of the diſtemper is paſt, the patient will ſtill be teaſed with a teneſmus as long as any ſoreneſs or extraordinary tenderneſs of the rectum remains; in which caſe a clyſter of half a pint of fat mutton broth and twenty drops of tinctura Thebaïca ſcarcely ever fails of proving a cure; and it is almoſt the only ſtage of the illneſs in which opium is either uſeful or ſafe: if it were given in the beginning to quiet the pain before any evacuation had been made, I apprehend it would be very prejudicial.

" Where this diſtemper has ended fatally, it has been attended with a hiccup, and a fetid water voided by ſtool."

The titles of the immediately ſucceeding chapters are, *Ebrietas*, *Epilepſia*, *Eryſipelas*, *Eſſera*, *Expergefacti cum Clamore*.

Epilepſy is treated of at ſome length, but unhappily the author has given us but a melancholy picture of the diſeaſe and its conſequences, without being able to ſuggeſt any tolerably certain means of relief. It has been an old obſervation, he remarks, among phyſicians, that epilepſies beginning in childhood often terminate about the years of puberty; which has by no means been verified by any experience he has had. On the contrary, this malady has appeared often to come on at that time of life, and he has not remarked one

one inſtance of its yielding in either ſex to the change made by puberty. As there is no age at which it does not come on, ſo there is hardly any at which it has not finally left the patient. But it muſt be owned that it is doubtful whether nature has not had more ſhare in moſt cures than medicine, becauſe there is none which has not failed ſo often that we cannot be confident of its having much merit where it has appeared to ſucceed.

The *Eſſera*, or Nettle-raſh, is a diſtemper of the ſkin, which, being attended with no danger, is mentioned but ſeldom and ſlightly in books; yet it is often extremely diſtreſſing. This has induced the author to ſpeak of it ſomewhat fully. "It has its Engliſh name," he obſerves, "from reſembling in its appearance the effect of ſtinging-nettles upon the ſkin. Sydenham, in his chapter on the eryſipelas, reckons it a ſpecies of that diſeaſe; and Sennertus, and others, deſcribe it under the name of *Eſſera*, ſuppoſing it to be the ſame diſtemper with that which is ſo called by the Arabian phyſicians.

"The little elevations upon the ſkin in the nettle-raſh often appear inſtantaneouſly, eſpecially if the ſkin be rubbed, or ſcratched, and ſeldom ſtay many hours in the ſame place, and ſometimes not many minutes. There is no part of the body exempt from them. Where many of them riſe together, and continue an hour or two, there the parts affected are often conſiderably ſwelled; which particularly happens in the face, arms, and hands. Theſe eruptions will continue to infeſt the ſkin, ſometimes in one place, and ſometimes in another, for one or two hours at a time, two or three times every day, or perhaps for the greateſt part of the twenty-four hours. In ſome perſons they laſt only a few days; in others many months. I have known ſeveral complain of them for two years with very ſhort intervals, and ſome for ſeven, or even ten years.

"Males and females are equally liable to the eſſera, and I have obſerved it in all ages, from childhood to decrepit old age. Conſtitutions tainted with ſtrumous, or haraſſed with rheumatic and hyſteric complaints, or broken down with intemperance, palſies, and age, have all been, as far as I could judge, equally fitted for this diſorder; but not more ſo than the ſoundeſt ſtate of health, in the vigour of life, to which all other complaints were unknown.

"If ſome of the ſufferers by this eruption have found themſelves well whilſt it appeared, and infeſted with pains of the head and ſtomach, and languors, upon its diſappearing, others have complained of as much languor, and equal pains of the ſtomach, during the time of its appearance; but far the greateſt number experience no other evil from it beſides the intolerable anguiſh ariſing from the itching, which will ſometimes make them fall away, by breaking their reſt, and is often ſo tormenting as to make them almoſt weary of their lives.

"The external uſe of cantharides has been known to occaſion this ail in ſeveral perſons, and in ſome the internal uſe of the wild valerian root; but all who are affected with it find the itching and little eminences hardly ever fail to be brought on by any degree of ſcratching or rubbing the ſkin. The ſeaſons of the year have no conſtant effect either in alleviating or exaſperating this diſorder; and the ſame may be ſaid of cold and heat, and particularly of the heat of a bed, which appears to make ſome much better, and others much worſe. Sea bathing has ſeemed to occaſion it in ſome, and to relieve it in others, but is perhaps in reality innocent and uſeleſs in all, as it certainly has been in ſeveral, as well as warm bathing, though continued for an unuſual length of time. Mercurial and ſulphureous ointments have been found ineffectual in curing it; and the powder, infuſions, and decoctions of white hellebore root, in ointments and lotions, have only for a ſhort time changed the itching

itching into ſmarting. Oil, vinegar, and ſpirit of wine, applied to the ſkin, will ſometimes mitigate the itching, and afford a little preſent relief.

" The appearance of this eruption was before ſaid to reſemble the ſting of a nettle; but, together with ſuch little riſings in the ſkin, there are ſometimes long wheals, as if the part had been ſtruck with a whip. Whatever be the ſhape of theſe eminences, they always appear ſolid, without having any cavity or head containing either water or any other liquor; and this affords a uſeful mark by which this cutaneous affection is diſtinguiſhable from the itch: for it often happens that the inſufferable itching attending this eruption provokes the patient to ſcratch the parts ſo violently, as to rub off a ſmall part of the cuticle on the top of theſe little tumors; a little ſcab ſucceeds, and, when the ſwelling is gone down, there is left an appearance hardly to be diſtinguiſhed from the itch, but by the circumſtance juſt now mentioned. It has been this exact reſemblance which has occaſioned the application of ſulphureous and mercurial ointments in many perſons whom I have ſeen, without producing either any good or bad effect. The eſſera further differs from the itch in not being infectious; for though I have once ſuſpected that a huſband had catched it from his wife, yet my ſuſpicion was probably not well founded in this inſtance, becauſe in many others I have known that this complaint ſhewed no ſigns of being communicable by contagion.

" I never ſaw reaſon to ſuppoſe it had occaſioned any ſuch viciouſneſs of the humors, as greatly to require, or to be much the better for internal alterative remedies: and if the itching could be certainly and expeditiouſly allayed, we might ſpare ourſelves the pains of looking out for any other method of cure."

On the ſubject of *Fever* the author is more conciſe than its great frequency and importance would ſeem to require. The head ache, which is a very diſtreſſing

ſymptom in the beginning of fevers, is almoſt certainly relieved, the author obſerves, by a bliſter between the ſhoulders; and the ſame remedy equally relieves the inflammation in ſore throat, pleuriſies, and peripneumonies. In low fevers he conſiders bliſters to act as cordials. The ſtrangury which they are apt to occaſion is certainly cured, he remarks, by a clyſter of water and oil, each two ounces, and 15 drops or more of *tinct. opii.* Muſk and camphor appear, from the experience of the author, to be very equivocal remedies. He has known a ſcruple of the latter to be given every ſix hours, with an equal quantity of muſk in the intermediate hours, without having any perceivable effect in abating the convulſive catchings, or compoſing the patient to reſt.

Of antimony the author has had conſiderable experience, but not enough, he remarks, to convince him that it poſſeſſes any ſpecific virtue of curing continual fevers. Of the Peruvian bark, which is in general much dreaded in high continual fevers, Dr. H. obſerves, that he is not ſo ſure of its being uſeful as he is of its being innocent, not only when two ounces of the decoction have been given every four hours, but when two ſcruples or a drachm of the powdered bark have been directed to be taken as often.

Some pains are taken to diſtinguiſh the hectic from the true intermittent, as the remedies of the two are wholly different. The hectic patient, it is obſerved, is very little, or not at all, relieved by the breaking out of the ſweat, but is often as reſtleſs and uneaſy after he begins to perſpire, as he was while he ſhivered, or burned. All the ſigns of fever are ſometimes found the ſame after the perſpiration is over; and during their height the chilline ſs will ſometimes return, which is an infallible character of this diſorder.

There are not many diſeaſes, the author obſerves, in which an attention to the pulſe affords more inſtruction than it does in this; yet, even here, whoever relies too confidently and entirely upon the ſtate of the

the pulſe, will in ſome caſes find himſelf miſled: for it happens, as well as he can gueſs, to one among twenty hectic patients, that while all the powers of life are daily declining, with every ſign of an incurable miſchief, the artery will to the laſt minute continue to beat as quietly, and as regularly, as it ought to do in perfect health.—Very little is ſaid on the cure of hectic fever, and that little is far from conſolatory.

The ſubjects of *Fiſtula Ani*, *Fluor Albus*, *Gonorrhœa Mitis*, *Graviditas*, *Hæmorrhoides*, *Hernia*, *Hydrocephalus*, *Hydrophobia*, are all treated of rather curſorily, and afford no room for particular remark.

Hydrops. Dropſy, the author obſerves, is very rarely an original diſtemper, but is generally a ſymptom of ſome other, which is too often incurable; and hence ariſes its extreme danger. The water may be ſometimes evacuated by purging, and for this purpoſe he has employed one, two, or three grains of elaterium, taken in a ſpoonful of brandy, or any ſtrong diſtilled water; or gamboge, in the quantity of half a ſcruple. Theſe rough purges, however, cannot always be borne, and then recourſe muſt be had to the milder. Diuretics appear to have been very uncertain remedies in his hands. No mention is made of the digitalis.

Hypochondriacus et Hyſtericus Affectus. The author, it would ſeem, conſiders thoſe diſeaſes as the ſame, modified only by ſex and temperament. The dyſpeptic and other bodily ſymptoms he conſiders as ſecondary only, and by no means conſtituting the cauſe of the mental affection. "Many of the ſymptoms," he obſerves, "are common to hypochondriac men and hyſteric women; but ſome of them are leſs, and ſome more violent in females, and there are others which ſeem peculiar to them. They are ſeldom ſo low-

low-ſpirited as the men, but are more apt to have their faculties and paſſions benumbed, being turned almoſt into ſtatues, unaffected by occaſions of joy or grief. They are far more ſubject to faintings, and to thoſe univerſal convulſions, which are called hyſteric fits, from which the other ſex ſeems to be ſaved by their ſuperior ſtrength. Theſe fits will be brought on by the ſlighteſt affection of the ſenſes or fancy, beginning with ſome uneaſineſs of the ſtomach or bowels. They will laſt for half an hour, or leſs, and return frequently every day, or even continue for a whole day: in the mean while, it is ſingular, that, though the hyſteric perſons be incapable of ſpeaking, and ſeem ſenſeleſs, yet they often hear and underſtand every thing that their attendants ſay. After coming a little to themſelves, or even without falling into a fit, they will ſometimes have a ſlight delirium upon them, which laſts for ſeveral hours. The women differ likewiſe from hypochondriac men in being much more apt to cry, and to fall into convulſive laughter, or to loſe their voice, or utter violent ſhrieks; and in having hiccups, yawnings, ſtretchings, and other tendencies to convulſions. The hyſteric globe in the throat is ſcarcely every heard of among men, but is one of the moſt familiar ſymptoms with hyſteric women.

"Man has immemorially been ſaid to conſiſt of Σῶμα, Ψυχὴ, Νᾶς, the body, the animal faculties, and the mind. In hyſteric women the operations of the animal powers ſeem to be moſt diſturbed and perverted; but in men the mind is the moſt affected: involuntary exclamations, faintings, and convulſions of all ſorts, being moſt common in women; and ſilent deſpair in men. Hence, perhaps, ſuicide is more common with men, than among women.

"Some ſpeculative perſons, ſeeing ſuch evident marks of a deſign in the Author of Mankind that human happineſs in every ſtate ſhould be nearly the ſame, have conſidered low-ſpiritedneſs as the means by

by which the happineſs of the rich and idle is reduced to a level with that of the indigent and laborious part of the ſpecies. But it is by no means true that the poor and induſtrious are by the lowneſs of their ſtation ſheltered from the tyranny of this malady. Some derive it from their parents; and the ſeeds of it, brought with them into the world, are ſure to make their appearance at the proper time, let the condition of the perſon be what it may. A dejection of ſpirits will rob the poor huſbandman of the eaſe and comfort which he ſhould feel when the labour of the day is ended. Neither ſtrength of conſtitution, nor temperance, nor buſineſs, nor the gout, afford a certain ſecurity. However, idleneſs will not only foſter a diſpoſition to a languor of ſpirits, but will unqueſtionably create it; and ſo will the other extreme, of an oppreſſion from too much buſineſs. An intemperate uſe of women, and wine, will likewiſe be its mother and nurſe, as well as too great abſtinence in eating. Repeated fevers, exceſſive purgings, terror, and immoderate grief, are no uncommon cauſes of its appearance in thoſe who before were ſtrangers to it.

" Hypochondriac complaints reſemble the gout, and madneſs, and conſumptions, in their not appearing before the age of puberty; from which, to the age of ſixty, there is no time at which this malady has not made its firſt viſit. There are very few examples of low-ſpirited perſons who find themſelves worſe at night than in a morning; the generality of them, like moſt of thoſe who are afflicted with any of the complaints ſtyled nervous, are hurt by their ſleep, little as it is; and the longer they happen to ſleep, the worſe they are: they awake out of it in confuſion, and do not come immediately to themſelves; and when they do, they can think only of melancholy ſubjects, and feel the worſt horrors of their diſorder. This ſtate continues till dinner, with very little abatement: after dinner they feel themſelves a little revived;

vived; and at night the tide of their ſpirits returns; which being deſirous to enjoy, and dreading their certain ebb when they lie down, they go late and with reluctance to bed."

In the treatment of thoſe affections, the chief rule is to put the general health into the beſt ſtate poſſible. The following remarks on the uſe of wine and opium are highly intereſting.

"Many in a lowneſs of ſpirits are not indiſpoſed to raiſe them by wine and ſpirituous liquors; and they are encouraged and preſſed to do it by their well-meaning but ill-judging friends. No words can be too ſtrong to paint the danger of ſuch a practice in its proper colours. The momentary relief is much too dearly bought by the far greater languor which ſucceeds; and the neceſſity of increaſing the quantity of theſe liquors, in order to obtain the ſame effect, irrecoverably ruins the health, and in the moſt miſerable manner. If the anxiety of dejection becomes intolerable, and muſt have ſome preſent relief, it is better to ſeek it in opium than in wine. A few drops of the tincture of opium, with or without the tincture of aſafœtida, or antimonial wine, would be a much ſafer cordial for the drooping ſpirits than ſpirituous liquors; and might be increaſed without equal danger of hurting the health, and without bringing on the ſame difficulty of ever leaving it off again. My experience has often taught me, how ſafely, and conſiſtently with buſineſs, a courſe of taking opium may be continued for a conſiderable part of a man's life, and how practicable it is to be weaned from the habit of it; while every body's experience muſt have ſhown them the danger of perſiſting in a courſe of drinking immoderately, and the almoſt impoſſibility of ever reclaiming a ſot."

Icterus, Ileus, Inflatio et Ructus, Inſania, Inteſtinorum Dolor, Iſchuria. Dr. H. queſtions the accuracy of Sydenham's remark, that jaundice is no uncommon

common ſymptom in hyſteric caſes, where there is no diſorder of the gall or gall ducts; as nothing of this kind has occurred to very many other practitioners, though hyſteric complaints be ſo very frequent. The ſeat of the exquiſite pain felt in caſes of gall ſtones, the author ſuppoſes to be the duodenum, when the concretion is about to paſs into the inteſtine; the liver having, as he imagines, little or no ſenſe of feeling, while it is probable that not more belongs to the gall ducts themſelves.

"In a ſimple jaundice," the author obſerves, "without any apparent diſorder of the liver, or other viſcera, a hiccup will now and then join itſelf to the other ſymptoms, but without denoting any preſent or future miſchief.

"It might naturally be expected, that the want of irritation from the bile ſhould make icteric perſons coſtive; but in fact they are often diſpoſed to have a purging. Certainly neither of theſe ſtates is peculiar to their diſtemper: and the ſpontaneous diarrhœa, or the readineſs with which a coſtiveneſs is removed, may help to diſtinguiſh it from the ileus.

"In other diſorders of the bowels, it is a very alarming ſymptom to have the patient ſubject to fits of ſhivering: but very ſtrong ones now and then happen in the jaundice, and laſt an hour, and return every day for two or three times, without being followed by any other complaint. It is difficult to gueſs ſatisfactorily at the cauſe of this; but, whatever it be, I have ſuſpected that this ſymptom happens at the time of the ſtone's paſſing into the inteſtines. However, neither ſuppuration, nor gangrene, nor any other miſchief, needs be apprehended from this ſhivering."

Reſpecting the propriety of giving emetics in caſes of gall ſtones, the author remarks, that vomiting ſeems to be an effort of nature to diſlodge the ſtones: but it may be a queſtion, whether it be ſuch an effort as ought to be encouraged, or checked; for, though on the one hand, this violent concuſſion may force the

ſtone

ſtone back into the cyſtis, or forward into the duodenum, and ſo effect either a temporary relief or a perfect cure, yet it may be feared, if the ſtone be ſo fixed in the duct as not to be eaſily moved, that the action of vomiting will lacerate the membranous duct, and be the cauſe of future miſchief, as well as of preſent pain. Now, whether this fear be juſt, or groundleſs, can only be determined by experience; and, by what the author has obſerved of icteric caſes, it has appeared to him that vomiting excited while the pain was intenſe has rather quieted than aggravated it, and has never brought it on. But if we be ſecure of its doing no harm, there is ſo good a chance of its being beneficial, that, whether the patient have a vomiting or not, it is a judicious practice to order an emetic either at firſt, or as ſoon as the intenſeneſs of the pain has been alleviated, and occaſionally to repeat it.

The experiments of the author give no countenance to the idea of diſſolving gall ſtones in the body, even ſuppoſing the remedies proper for the purpoſe could reach the ſeat of the diſeaſe, which is hardly poſſible. Alkaline ſalts, lime water, various ſoaps, and, the moſt powerful of all, the ſtrongeſt ſoapleys, only extract a green tincture from gall ſtones, without leſſening their bulk or ſhape. Nor were they diſſolved in the various acids. A perſon, for a ſtone in the bladder, had been in the habit of ſwallowing an ounce of ſoap every day for ſeven years. His body was opened after his death, when, notwithſtanding ſuch an extraordinary quantity of ſoap had been taken, a great number of ſtones were found in the gall bladder, which ſhewed no ſign of having been acted upon by any ſolvent.

The importance, and, at the ſame time, the difficulty of accurate diſtinction is manifeſt in the author's obſervations with regard to *ileus*, or inflammation of the inteſtines. It has happened, he ſays, in one or two

two inſtances, that the ileus has from the very beginning occaſioned reſtleſſneſs and uneaſineſs rather than pain, even in thoſe, after whoſe death a portion of the inteſtine has been found ſphacelated. And again, he obſerves, that for ſome cauſe, about which he can form no conjecture, it happens, though very rarely, in this and in other inflammatory and malignant caſes, that the pulſe continues in a natural ſtate, giving not the leaſt notice of danger, or of approaching death. This he has obſerved thrice in the *ileus*.

Reſpecting the treatment of this formidable diſeaſe, we find nothing particularly new. The good effects of calomel, and other mercurial preparations, which have been judged to quicken the virtue of purgative medicines, have not been ſatisfactorily confirmed in the author's experience. He is decidedly in favour of the uſe of opiates along with purgatives, not only for the purpoſe of allaying pain, but as they enable the ſtomach to retain much larger quantities of purgative remedies than could otherwiſe be exhibited.

Surgeons, we apprehend, will not readily accede to the juſtice of the following remarks on the operation for hernia; indeed, they appear to us to be pregnant with danger, and oppoſed by very ſufficient experience. There is much reaſon to believe that the ill ſucceſs which has too often attended the operation is to be attributed to the delay on the part of the ſurgeon in performing it, rather than to the ſeverity of the operation itſelf. "The operation of dilating the ring," Dr. H. obſerves, "with a knife, and by that means freeing the gut from the ſtricture by which it is ſuppoſed to be ſtrangled, is, as far as I have obſerved, very rarely, if ever, adviſable, as well upon other accounts, as for all the reaſons which have been juſt mentioned. No one, who has ever ſeen it performed, can help having a dread of directing ſuch a hazardous operation too ſoon, or ſuch a painful one too late: and we are, I think, greatly at a loſs for any rules of judging in what caſe, and at what preciſe time

time of the illneſs, this operation may be ſucceſsful, and nothing elſe."

Linguæ et Oris Dolor, Lipothymia, Lumborum Dolor, Lumbrici, Lymphaticæ Glandulæ, are the titles of the ſucceeding chapters. "We have the misfortune," the author obſerves, "to have innumerable remedies for worms; this being pretty generally a ſure ſign, that we have not one upon which we can with certainty depend. Spirit of turpentine, oil, infuſions of tobacco, and mercurials, which are ſuch deadly poiſons to many ſmall animals out of the body, have been thrown up in clyſters without deſtroying the aſcarides; they, and probably the other worms, being ſo defended by the mucus in which they lie, that they are ſecure from the action of any noxious powders, or liquors. Until, therefore, the reputation of a ſpecific for worms be better eſtabliſhed in ſome of the many medicines which lay claim to it, nothing better can be done than giving purging medicines of any kind which are beſt borne, and can be repeated without creating too great a degree of loathing. Bitters, either joined with theſe, or in the intermediate times, may be uſeful; not that I have any reaſon to believe them hurtful to worms, but becauſe they will help to reſtore the diſordered ſtomach and bowels to their natural ſtrength. A pint of water with as much common ſalt as could be diſſolved in it, has more than once been of ſingular uſe in expelling worms from the inteſtines."

On the ſubject of the *lymphatic glands* the following facts are not a little extraordinary, and the cauſe of them quite obſcure. "In an old woman, who ſeemed otherwiſe healthy, and in particular had no diſeaſe of the breaſt, the lymphatic glands under the arm began to ſwell, and be obſtructed; in conſequence of which the whole arm and hand ſwelled to an enormous ſize without pitting, and after a little while

ſhe

ſhe died. Likewiſe in a young man, the face, and head, and breaſt, were greatly ſwollen without pitting; the veins of the breaſt were varicous; he had pains in his jaws, was ſleepleſs, ſhort breathed, could hardly bear to lie down, and after a few months died."

In our next number we ſhall probably terminate our analyſis of this invaluable work. It is one of the very few that remind us of an Hippocrates and a Sydenham; *rari nantes in gurgite vaſto:* we dwell on them to tedioufneſs, and at laſt quit them with reluctance.

ART. XL. *A Treatiſe on the morbid Affections of the Knee Joint. By* JAMES RUSSELL, *F. R. S. E. Fellow of the Royal College of Surgeons, and one of the Surgeons to the Royal Infirmary of Edinburgh.* 8vo. 234 pages, price 6s. Edinburgh, 1802. LONGMAN and REES, London.

THE ſubject of the eſſay before us is, the various affections of the knee joint, in which the parts immediately pertaining to the articulation are concerned, excluding thoſe ariſing from external injuries, as fracture and diſlocation, and alſo aneuriſm of the popliteal artery. A great number of diviſions and diſtinctions are here introduced which we believe to have very little foundation in nature, and which ſerve to ſwell the volume without conveying information, or but little, to the reader. The work, indeed, is methodical even to dulneſs. No leſs than fifteen chapters are employed in treating of a ſubject that a few pages would be quite ſufficient to convey the ſum total of our preſent knowledge of.

The firſt chapter treats of *ſuperficial injuries*, ſuch as lacerations, burns, &c. of the integuments; injuries

ries which have no relation at all to the knee joint, and which call for no other than the ordinary treatment.

Chap. 2. *Injuries upon the burſa below the patella.* Accumulation of fluid in the burſa, the effect of violence inflicted on this part, has ſometimes, the author obſerves, been miſtaken for a collection of purulent matter, and openings made accordingly, to the injury of the patient. The means of diſtinguiſhing are here pointed out, and which are ſufficiently obvious to any one acquainted with the ſtructure of the parts.

Chap. 3. *Tumours containing blood.* Theſe ſeem frequently to have occurred to the author, and have been "ſeated upon the anterior part of the knee, including in part the region of the patella, though upon the whole they were rather lower. They were quite ſoft and colourleſs, as none of the effuſed blood *had penetrated through the ſkin.*" As they appear to have no diſtinctive marks, "exhibiting all the characters of encyſted tumours," and as they require no treatment but what is adapted to tumours from effuſed blood in other parts of the body, we need not follow the author in his detail.

White ſwelling comes next in order, that is to ſay, the hiſtory of the ſymptoms: the *cure* makes the ſubject of the 10th chapter. The author ſeems to imagine that the diſorder very generally begins in the ſoft parts exterior to the joint, and that the ligaments, the cartilages, and the bones, become ſubſequently, and in order, affected. But this is contrary to the obſervation of the beſt ſurgeons, who have found the diſeaſe to begin very generally in the bones themſelves; and, indeed, is inconſiſtent with his own remark juſt before made (p. 32), viz. that, "with reſpect

ſpect to the ſtate of the capſular ligament, it would appear to undergo a material alteration in its ſtructure, very ſoon after the commencement of the attack. It loſes the firmneſs of its texture, and as the texture becomes looſer the thickneſs of ſubſtance increaſes." "But in general," he remarks further, "the moſt eſſential change is to be obſerved upon the inſide of the ligament, which becomes covered with a layer of a ſoft ſubſtance of a pale yellowiſh colour, and ſemi-tranſparent. This ſubſtance is often nearly one eighth of an inch in thickneſs." If all this be obſervable "very ſoon after the commencement of the attack," it is plain that the affection of the capſular ligament muſt be one of the very earlieſt ſymptoms.

That variety of white ſwelling, where, as the author aſſerts, "the motion of the joint, inſtead of being limited from rigidity, becomes more free from relaxation, ſo that it not only admits of complete extenſion, but even allows the leg to be bent ſomewhat forward," we confeſs ourſelves unable to form an idea of.

"It now only remains," the author obſerves, "to ſpeak of the nature of white ſwelling of the knee joint. And in this view I have no heſitation to claſs it among ſcrofulous affections; for not only the leading ſymptoms reſemble thoſe of ſcrofula, but white ſwelling often occurs in the perſons of patients whoſe conſtitutions are manifeſtly ſcrofulous. The diſeaſe, therefore, would ſeem to be a modification of ſcrofula attacking the knee joint. The ſoftneſs and ſuperficial eroſion of the bones, the ſeparation and diſſolution of the cartilages, are all characteriſtic ſymptoms of ſcrofula. To the ſame character belongs the colourleſs ſwelling occaſioned by a lymphatic effuſion, ariſing without any known cauſe, and unaccompanied with external inflammation, and alſo the nature and appearances of the exudation which lines the inſide of the capſular ligament. It may farther be remarked, that, in thoſe countries where ſcrofula rarely occurs,

white ſwelling is a diſeaſe almoſt entirely unknown to practitioners. Accordingly Morgagni mentions the unfrequency of the diſeaſe in Italy. It would likewiſe appear to occur but ſeldom at Vienna, and in many other parts of Germany. In thoſe countries, eſpecially in the fine climate of Italy, ſcrofula is much leſs prevalent than in the colder and moiſter climates of the north. There is, indeed, no country in which white ſwelling more frequently occurs than in the iſland of Great Britain, in which ſcrofula is known to be ſo prevalent. Beſides thoſe general conſiderations, if we attend to particular ſymptoms, we ſhall find them exactly ſuch as we might expect an attack of ſcrofula to produce.

" This view of the ſubject leaves little doubt reſpecting the true nature of the affection. And if once we admit ſcrofula to have a ſhare in producing every attack of genuine white ſwelling, it is not ſurpriſing to find the ſymptoms modified with a conſiderable variety of appearances."

Chap 5 treats of *ſimple inflammatory attack.* But this requires no notice.

Chap. 6. *Dropſical ſwellings.* We have here deſcribed a *venereal dropſy* of the knee, a *ſcrofulous dropſy*, and a dropſy from mere weakneſs. The exiſtence of the firſt of theſe is thus argued. " The preſence of ſyphilitic ſymptoms, as the contamination has been long preſent in the body, led to a ſuſpicion that the ſwelling in the knee was of a venereal nature. I have known different inſtances of this where the diſcovery was made by the detection of venereal ſymptoms in other parts of the body; ſo that, whenever ſuch an affection of the knee is preſent, along with venereal ſymptoms of long ſtanding, we have reaſon to conclude that the ſwelling is the offſpring of the ſame cauſe. As far as I have obſerved,

ſerved, venereal dropſies of the knee are not ſo indolent as thoſe which proceed from mere weakneſs; they have more tenderneſs, and are even painful upon being touched."

Chap. 7. *Uncommon diſeaſe.* Under this denomination is deſcribed an enlargement of the whole joint, and that to an enormous degree, the circumference in one inſtance being twenty-eight inches. On diſſection, the head of the tibia is found to be principally affected. The fibula is alſo ſometimes affected, which the author aſſerts never is the caſe in white ſwelling. Of this uncommon diſeaſe the author has, nevertheleſs, met with four or five caſes; and it appears that other practitioners muſt have not unfrequently encountered it, ſince they have been able to lay down a general rule for its treatment. It is ſaid to be incurable by medicine; and "ſurgeons," the author obſerves, "have been induced to anticipate the natural termination of the caſe by the removal of the diſeaſed parts;" but without avail; "for, without a ſingle exception, every patient on whom amputation was performed died from the occurrence of hæmorrhage," the artery partaking of the diſeaſed condition, and being thus rendered unfit for union.

Chap. 8 treats of moveable bodies in the knee joint. Here alſo a number of ſpecies are aſſigned, which, if they exiſt, it would ſcarcely be poſſible to aſcertain previous to an operation.

Chap. 9. *General prognoſis of affections of the knee joint.* Suppoſing theſe affections to be as numerous as the author imagines, it is plain that any general prognoſis muſt be inapplicable: but *method*, perhaps, required it.

Chap. 10 treats of the cure of white ſwelling. This in the beginning conſiſts chiefly in local bleeding, and cold ſaturnine applications. If theſe fail, and the diſeaſe advances, there is then, as the author very judiciouſly remarks, no encouragement to perſiſt longer in the practice. He would ſubſtitute warm ſtupes for the cold applications, though it may ſtill be adviſable, he thinks, to perſevere in the repetition of ſmall bleedings. Theſe failing, alſo, the third ſyſtem to be adopted is, irritation of the integuments of the joint, or the production of a conſtant diſcharge of matter by iſſues or bliſters, to the latter of which the author ſeems to incline in preference.

Reſpecting the diet to be employed in thoſe caſes, we very much queſtion the propriety of the author's doctrine. It appears to us but ill adapted to the weak ſtate of the patient, or the habit of body in which the diſeaſe is generally found to ariſe. After recommending the free uſe of acids, vegetable or mineral, he obſerves, "the diet of patients in the advanced ſtate of white ſwelling, who are ſuffering perpetual irritation from fever and pain, and gradually loſing their fleſh and their ſtrength from frequent perſpiration, requires to be nouriſhing without being ſtimulating. A very low diet would not afford ſufficient nouriſhment, while one too nutritious would exaſperate the ſymptoms of fever; ſo that an intermediate diet, compoſed chiefly of milk and farinaceous vegetables, in general anſwers beſt. Solid animal food is too rich; beſides, in this form, the patients' appetite ſeldom inclines them to take it. But though animal food, in a ſolid form, be not ſo proper, there is rarely any objection to the uſe of the gelatinous parts of animals diſſolved in water, in the form of jelly."

Having ſpoken of the peculiarities in the treatment called for by the different varieties of the complaint, the author proceeds to diſcuſs the queſtion as to the moſt

moſt proper time to amputate the limb, ſuppoſing all other means to have been ineffectually employed; and this he determines to be, "immediately after the caſe has been declared deſperate." Practitioners, however, do not always readily agree on this point.

Chap. 11. *Cure of ſimple inflammation.*

Chap. 12. *Cure of rheumatic and gouty affections.* There is nothing here requiring particular notice.

Chap. 13. *Treatment of dropſical ſwellings.* This ſubject was mentioned above. If the diſeaſe from its obſtinacy and inconvenience ſhould call for it, the author recommends an operation for evacuating the collected fluid. He obſerves, however, that he has himſelf never had occaſion to perform it.

Chap. 14. *Concerning the burſæ mucoſæ.* When a collection of fluid takes place in the burſa, which is ſituated on the patella and its ligament, and it cannot be made to diſappear by preſſure or the uſe of ſtimulants, the author adviſes that it be let out by a puncture, and which may be done without riſk of inflammation. In thoſe collections, however, which take place in the burſæ connected with the extenſors of the leg, the riſk of exciting inflammation that may involve the whole joint is too great, it is obſerved, to render an operation prudent or adviſable.

The laſt chapter treats of anchyloſis of the knee joint, a circumſtance in general "devoutly to be wiſhed" in caſes of white ſwelling. To this are ſubjoined a few formulæ for external applications, of no great importance.

ART. XLI. *Facts and ſome Arguments tending to ſhew, that the public Deciſion may with Prudence be ſuſpended reſpecting Inoculation of the Cow-pox.*

By Thomas Lee, *a Member of the Univerſity of Edinburgh.* 8vo. 36 pages, price 1s. London, 1802. Hurst.

WITHOUT examining the validity of this writer's concluſion, we ſhall content ourſelves with ſtating briefly, and in his own words, the chief arguments and facts which incline him to it. His object, he obſerves, is " to ſhew that the adoption or the rejection of Dr. Jenner's propoſition, that inoculation of the cow-pox is a preventive of the ſmall-pox is equally improper—to endeavour to ſhew that the univerſal adoption of that propoſition would be raſh and premature, and that the rejection of that propoſition would be uncandid, unphiloſophical, and unjuſt—that, by haſty adoption, an immenſe ſcene of mental as well as corporal agony may paſs on the real theatre of life—that, by rejection, a mean of augmenting the ſum of human happineſs will be loſt, or abandoned to chance or opinion."

After endeavouring to ſhew that expectations as ſanguine as thoſe entertained at preſent with regard to the cow-pox prevailed at the firſt introduction of the variolous inoculation, and that they have been completely fruſtrated by experience, it having been found that the fatality of the ſmall-pox has rather increaſed than diminiſhed throughout Europe ſince, the author advances the following theoretical arguments againſt the indiſcriminate adoption of the new practice:

" That as the former exiſtence of no one ſpecific diſeaſe, which noſologiſts have claſſed, will prevent the acceſſion of another ſpecific diſeaſe in the ſame perſon, for any length of time, ſo it is againſt all juſt analogy, and even fact, that the inoculation of the cow-pox will prevent the future acceſſion of the ſmall-pox.

" That as it is found that convaleſcents from any the moſt contagious diſeaſes may inhale the miaſmata

mata of wards, and diſtricts almoſt ſaturated with the breath of deſtruction, with perfect impunity, for a certain time, more or leſs; but

" As ſuch who have been ſo convaleſcent become, in a length of time, more or leſs liable to a recurrence of the ſame diſeaſe, or to any other,

" So, it may be alledged, inoculation of the cow-pox may exempt for a time, only, thoſe who have undergone it from the acceſſion of the ſmall-pox: and it may be ſaid, that the only diſtinction betwixt the effect of this inoculation and ſuch other diſeaſe is, that by the former the liability to recurrence is protracted to a longer period, and only until the habit ſhall re-acquire the diſpoſition which may facilitate the progreſs of the ſmall-pox contagion through the ſyſtem.

" That the acceſſion of one ſpecific diſeaſe has only been found, and that in very few inſtances, to prevent the recurrence of the ſame diſeaſe in the ſame perſon.

" That a rational theory of the ſmall-pox, and of all thoſe diſeaſes to which the human conſtitution can be liable, or is ſaid to undergo but once, may be as follows: namely, that, previouſly to the introduction of any ſuch diſeaſe into the ſyſtem, ſome phyſiological conformation, either of fibre or membrane, of fluid or of ſolid, ſome chemical principle or combination ſuſceptible of modification, change, or decompoſition; or, as the great and venerable Dr. Monro modeſtly ſays upon another occaſion, 'ſome ſomewhat' muſt exiſt, connected with, and dependent upon, or, perhaps, being, that moſt inſcrutable phenomenon, life: and, which, whatever it be, may of neceſſity be an exciting cauſe of the ſmall-pox; or, which, in caſe of a chemical reſolution of the difficulty, may ſtand in the firſt order of attraction of its contagion, and ſo the different phenomena of the diſeaſe become viſible: but that, if the exciting cauſe be abſent or repreſſed by the inſcrutable action of other principle or principles,

ciples, as we ſee is ſometimes the caſe; or, if chemical action be ſuſpended, or be otherwiſe than by the viſible acceſſion of the contagion accompliſhed, ſo the diſeaſe of ſmall-pox cannot take place.

" That the ſmall-pox being ſome ſpecific contagion, can only act, or be excited or be repreſſed, from or by its own ſpecific cauſes or attributes, ſince only the ſame cauſes produce the ſame effects, and the ſame ultimate effects are only producible by the ſame primary cauſes.

" That hitherto no acceſſions of matter, ſave its own ſpecific matter, has been obſerved to excite, ſuſpend, or modify the future action of the ſmall-pox.

" That to reaſon otherwiſe is to revive the ſophiſtry of the ſchools—to aſſume thoſe points for known and data, which, in their very eſſence, are unknown, diſputable, or unproved; and, in lieu of the leaſt fallible appeal to human reaſon, fact *and experience*, inſiſted upon by Lord Bacon, to ſet up, *in their ſtead*, the dreams of ingenuity, the good wiſhes of philanthropy, the ſanguine hopes of ſcience, and the preſumptions of crude and imperfect art.

" The laſt theoretical argument which is propoſed to be adduced, and which is tremblingly adduced, is,

" That, as it is believed that the ſmall-pox, whether natural or inoculated, gives riſe to or excites the action of certain diſeaſes new to, or latent in, the ſyſtem, and of an alarming type, eſpecially, it is ſaid, to the ſcrofula; and which diſeaſes are ſcarcely yet, with all our art, and all our acquiſition of facts, announced as valuable and examined as uſeful, within our faculty to cure or alleviate, ſo,

" The introduction of a new diſeaſe, ſuch as the cow-pox is, or is ſaid to be, may be pregnant with ſome calamity of a new and unheard-of type, never before coming under mortal cognizance or cure, of which

which ſome future poet, in effect, may apply to human beings what Virgil applies to beaſts.

" Verùm etiàm inviſos ſi quis tentârat amictus,
" Ardentes papulæ atque immundus olentia ſudor
" Membra ſequebatur: nec longo deindè moranti
" Tempore, contactos artus ſacer ignis edebat."

" That, therefore, it may be exclaimed with Lacoon,

——" O, Miſeri, quæ tanta Inſania Cives?"

The facts adduced in ſupport of theſe propoſitions are the following: we may obſerve, that a reference to time and place would have rendered them more ſatisfactory to the reader.

" I, Robert Newman, do moſt ſolemnly, and in the preſence of Almighty God, declare, that I had the cow-pox, or what is commonly called the cow-pox, in Glouceſterſhire, early in life; and that ſeveral years afterwards I was inoculated for the ſmall-pox, and was exceedingly ill after ſuch inoculation, and the eruption was as thick as the graſs on the ground on my face and other parts of my body:—And I further declare, that I never heard that the cow-pox would prevent the ſmall-pox; on the contrary, my ſiſter, notwithſtanding the cow-pox, caught the ſmall-pox naturally.

" I have read the above, and am ready to ſwear to its truth,

" ROBERT NEWMAN."

" The other fact is a mere, but pointed, relation of a young woman, now in a very reſpectable ſervice, and which ſtates, that her father is a farmer—that he kept cows—that very early in life ſhe was accuſtomed to milk cows—that an eruption of *a few puſtules, not more than five or ſix, if ſo many*, appeared betwixt her fingers, and which were very troubleſome—that ſhe remembers, perfectly, her father and the neighbours

bours ſaying that it was the cow-pox—that from this period, till ſhe was twenty-four years of age, ſhe frequently reſided where the ſmall-pox raged in the family—that ſhe at thoſe times, and until twenty-four years of age, remained unhurt—that, having attained that age, ſhe contracted the diſeaſe naturally, and experienced a moſt ſevere one. Her face tells the remainder of the melancholy tale, and ſtrongly evinces with what propriety it is ſaid in the commencement of this pamphlet, that this is a queſtion, the premature determination of which may "check the innocent glow, and agonize the heart of conſcious beauty, dawning into uſeful life." At preſent, the ruin of a beautiful and exceptionable ſet of features may be deplored."

"Two other caſes, equally in point, might be communicated; but, as they were obſerved by a moſt reſpectable practitioner in this city (Briſtol), ſo it would be uſurping what one day he may be inclined to do, to communicate them. The caſes alluded to, are thoſe of two ſoldiers of the Berkſhire fencibles, undergoing a ſevere diſeaſe of ſmall-pox from natural acceſſion, and who repeatedly declared that they had experienced the cow-pox when young."

A plan is ſuggeſted, at the end of the pamphlet, for a fair trial of the merits of the queſtion, and which would probably anſwer the purpoſe; but as there is no probability of its being adopted, we decline further noticing it.

ART. XLII. *A Deſcription of the Muſcles of the Human Body, as they appear on Diſſection; with the Synonima of Cowper, Winſlow, Douglas, Albinus, and Innes, and the new Nomenclature of Dumas, Profeſſor of Anatomy at Montpellier; with Prints and Maps, ſhewing the Inſertions of the Muſcles.*

Muſcles. By JOSEPH CONSTANTINE CARPUE, *Member of the Royal College of Surgeons in London, Surgeon to his Majeſty's Forces, and Teacher of Anatomy.* 4to. 55 pages, with 7 plates. London, 1801. LONGMAN.

IN acquiring a knowledge of the ſtructure of the human body too much recourſe cannot be had to the ſenſes; mere verbal deſcription, however accurate, makes but a faint, and ſeldom laſting, impreſſion on the mind. Next to ſeeing and handling the parts, therefore, good engravings afford the beſt aid to the anatomical ſtudent. In the plates before us the outlines only of the principal muſcles are given; and theſe variouſly coloured, ſo as to lead to an eaſy diſtinction of one muſcle from another. By this mode, the origins and inſertions, the knowledge of which is of the higheſt importance to the ſurgeon, are clearly pointed out. The following extract from the prefatory addreſs will ſhew the general nature of the work.

'A number of excellent anatomical works,' Mr. *Carpue* obſerves, 'have been publiſhed, which greatly aſſiſt ſtudents in their ſtudies. *Albinus* has given beautiful and correct plates of the muſcles, but the references are too numerous for ſtudents to follow conveniently. *Winſlow*'s deſcriptions of the muſcles are too long for the diſſecting room. *Innes* has made an uſeful alteration of Dr. *Douglas*'s work on the muſcles: his claſſification is of uſe, and I have here retained it; yet the muſcles being claſſed according to their ſeveral uſes, and not as they are found on diſſection, cannot fail of perplexing the ſtudent. For example, in deſcribing the *Pronator Radii Teres*, the muſcle that acts with it, the *Pronator Radii Quadratus*, cannot be ſeen till ſeveral muſcles are removed. In the following work I have deſcribed them in the order in which they appear on diſſection. The ſame muſcle is called by different names by various authors;

authors: this perplexes the ſtudent. To prevent this in the following pages, at one view will be ſeen the ſynonima of ſome of the moſt celebrated anatomiſts. A deſcription is alſo given of the muſcles and their inſertions, referring to plates and maps which ſhew theſe inſertions. This work is meant to aſſiſt the ſtudent in myology. As anatomy is only to be learnt by diſſecting, or ſeeing the ſubject, I apprehend that ſhewing the *inſertions*' [Mr. C. includes under this denomination what is more commonly termed the *origins*] ' is ſufficient: the form, connection, &c. muſt be ſtudied in the diſſecting room.

' On the deſcription of the muſcles, nothing new can be added. I follow *Cowper*, *Winſlow*, *Douglas*, and *Innes*. It was my intention to have given maps of *all* the muſcles; however, I found this impracticable in the muſcles of the face, abdomen, feet, &c. Thoſe are given in plates from *Duverney*, *Cowper*, *Albinus*, &c. In the plates of the maps, an engraving of the bones is given, on one ſide, with their ſeveral proceſſes, protuberances, &c.; on the oppoſite ſide is only an outline of the bones; and, that the lines ſhewing the inſertions of the muſcles may be more conſpicuous, each muſcle has an appropriate line. The ſkeleton is from a preparation in the collection of Mr. *Heaviſide*, who was ſo obliging as to permit Mr. *Leney* to make the drawing: in this the cervix of the os femoris and other parts are unuſually large.'

ART. XLIII. *Anatomical Plates of the Bones and Muſcles, diminiſhed from Albinus, for the Uſe of Students in Anatomy, and Artiſts: and accompanied by explanatory Maps.* By ROBERT HOOPER, *M. D. Fellow of the Linnean and Medical Societies, Aſſiſtant Phyſician to the St. Mary-le-Bone Infirmary,*

mary, &c. 12mo. 27 pages, 4s. London, 1802. MURRAY and HIGHLEY.

THE anatomical plates here preſented to the public were deſigned to accompany the laſt edition of the *Anatomiſt's Vade Mecum.* They now form a ſeparate faſciculus, and may be attached to that work, or not.

The mode which the author has adopted of accompanying each plate with a correſponding map, in which each muſcle is differently coloured from the reſt, and of courſe very readily diſtinguiſhed, cannot fail to be uſeful to the anatomical ſtudent. In order to preſerve the beauty of the engravings, no references are inſerted on them, but are confined to the ſubjoined maps.

Should the plan be approved, of which, indeed, we entertain no doubt, it is the author's intention to purſue it, in the illuſtration of the viſcera, blood-veſſels, nerves, and abſorbents.

ART. XLIV. *Eſſays on the Diſeaſes of Children, with Caſes and Diſſections. Eſſay* 1, *of Cynanche Trachealis, or Croup. By* JOHN CHEYNE, *M. D. Fellow of the Royal College of Surgeons of Edinburgh.* Royal 8vo. 72 pages, price 15s. London, 1801. LONGMAN and REES.

CONCEIVING the diſorders of infancy to have too little attracted the notice of phyſicians, and wiſhing, as far as in him lies, to ſupply the deficiency, the author of the work before us deſigns to diſcuſs, in ſeparate eſſays, the moſt important of the diſeaſes to which children, after being weaned, are expoſed, proceeding afterwards to thoſe which attack infants at the breaſt; and he endeavours to illuſtrate, by diſ-

ſection,

ſection, many important points in the nature and hiſtory of the diſeaſes of which he treats.

The diſeaſe which forms the ſubject of the preſent eſſay he has, he remarks, had conſiderable opportunities of obſerving, and of tracing, by diſſection, the effects obſervable after death. One of the moſt important remarks, with regard to the hiſtory, is the frequency of its occurrence at the ſea-ſide in the town of Leith, and its comparative rarity in Edinburgh, a diſtance of only a mile and a half: even in the town of Leith itſelf a very remarkable difference occurs between thoſe ſituated immediately on the ſhore, and thoſe at but a ſhort diſtance from it.

" The croup," the author obſerves, " is leſs known in the temperate than in the northern regions of Europe. Peculiar to no ſeaſon, it however chiefly appears in the winter and ſpring, in low ſituations expoſed to air paſſing over large bodies of water; and it is moſt eſpecially the diſeaſe of ſea-port towns. It is very prevalent in cold changeable weather, often appearing after a cloudy and hazy day; inſomuch that I have ſeen a mother, into whoſe family the diſorder had been a frequent intruder, kept in conſtant anxiety by this condition of the atmoſphere.

" The croup chiefly prevails in children from a ſhort time after birth until puberty; attaching itſelf to particular families, and generally attacking the moſt robuſt and ruddy children. It does occur, but more rarely, in children exhauſted by ſome other diſeaſe.

" The diſeaſe generally comes on in the evening, after the little patient has been much expoſed to the weather during the day, and often after a ſlight catarrh of ſome days ſtanding. At firſt his voice is obſerved to be hoarſe and puling; he ſhuns his playfellows, and ſits apart from them, dull, and, as it were, foreſeeing his danger. His illneſs, indeed, does not prevent him from going to ſleep, but ſoon he wakes with a moſt unuſual cough, rough and ſtridulous. And now his breathing is laborious, each

inſpiration

inſpiration being accompanied by a harſh ſhrill noiſe, moſt diſtreſſing to the attendants: his face is ſwelled and fluſhed, and his eyes bloodſhot, and he ſeems in conſtant danger of ſuffocation: his ſkin burns, and he has much thirſt; he labours more and more in breathing; ſtill the ringing noiſe is heard, and the unuſual cough: he tries to relieve himſelf by ſitting erect; no change of poſture, no effort, gives him relief. Generally his ſufferings are thus protracted until morning, when perhaps there is a ſlight remiſſion; his breathing is a little eaſier, but the anxiety, the fever, and the cough, remain: he is ſoon as ill again as ever; and theſe ſymptoms continuing, weakened by the violence of his illneſs, with purpled lips and leaden countenance, he dies in two or three days. In other caſes, the diſeaſe, after continuing ſome time, appears ſuddenly alleviated: the breathing is free, the child ſoon becomes cheerful, his appetite for food returns, he amuſes himſelf, and ſeems perfectly recovered, and the hope of every one is raiſed only to make the diſappointment more keen; for the child ſuddenly gets worſe, and dies; his livid and ſwoln face and convulſive ſtruggles giving him the appearance of one that is ſtrangled.

" When croup is favourable, it terminates in various ways. Moſt commonly, after the diſeaſe has arrived at its height, the ſequel is, as it were, a retroggreſſion of the attack; there is poured out a moiſture on the ſkin, the fever declines, and the croupineſs, and, laſtly, the cough, gradually wear away.

" Sometimes, after the diſeaſe has continued a few days, a viſcid and white ſubſtance is expectorated, and the child is relieved: ſometimes the croup is chronic, and does not ſubſide for weeks, when the reſolution is very gradual, the child now and then coughing up portions of this white membrane."

The neck and fauces are little affected in this diſeaſe. " Upon diſſecting the body, the cauſe of theſe alarming ſymptoms becomes ſufficiently obvious.

When the child dies after an illneſs of three, four, or five days, there is found lining the windpipe a white membrane, of conſiderable tenacity. It ariſes a little under the larynx, and is ſometimes prolonged into the diviſion of the trachea; and generally a quantity of a white fluid, like matter, with which the lungs are filled, is ſeen gurgling up. The attachment of the membrane is ſlight, but the inner coat of the windpipe is inflamed. The inflammation, which is ſtill perceptible, and which of courſe muſt have been more violent before this fluid exuded, I hold to be the immediate cauſe of the bad ſymptoms in the firſt ſtage of the diſeaſe; as the adventitious membrane and puriform fluid, the conſequence of that inflammation, is in the concluſion of it."

"The pathology of croup is very ſimple. When the child dies, the inflammation has terminated by effuſion. This effuſion is of a lymph, ſtrongly reſembling purulent matter, which, exuding on the inflamed ſurface of the windpipe, thickens there, forming the membrane."

Conſidering the croup as a diſeaſe of a highly inflammatory nature, the author lays down a plan of cure accordingly, and which is very little different from the preſent moſt approved mode of treatment. He thinks it proper, however, to conſider the diſeaſe as conſiſting of two ſtages—the incomplete, or inflammatory; and the complete, or purulent. In the former, the membrane is not yet formed; in the latter, it is fully formed. It is in the firſt ſtage, he obſerves, that every effort to cure the diſorder is to be made.

"In the firſt and ſecond days of illneſs, when the ſigns above enumerated are diſtinctly before us, when we find the croupineſs attended with much pyrexia, it is our duty to let blood freely; and, to do it effectually, it muſt be done with the lancet. Venæſection is eaſily performed, as, from the nature of the diſeaſe, the jugular veins are always tumid; and in a child it

is

is eaſier to let blood from theſe than even from the veins of the arm. If, indeed, the child is very young, and worn out by a former illneſs, or of a tender conſtitution, it may be proper to apply leeches; but it will very rarely happen that we cannot uſe the lancet; and it is of much conſequence to take away a large quantity of blood without delay, it being well known that to do this ſuddenly is of the utmoſt importance in inflammatory diſeaſes.

" After bloodletting, I have been accuſtomed to order an emetic. I have obſerved the beſt effects from emetics, whether uſed before or after the bloodletting.

" The warm bath is another very equivocal remedy; but, as it is a popular and ſimple application, it is generally uſed, along with an emetic, before the phyſician is called; and together or ſeparately, by their antiphlogiſtic powers, they in very many inſtances prevent the formation of the diſeaſe.

" Briſk purges, when the bowels are inactive, and indeed in moſt attacks, are ſo obviouſly proper, that it is ſufficient merely to mention them.

" The ſolution of tartariſed antimony, given every three or four hours, in nauſeating doſes, I have uſed with ſo much advantage, that I have no heſitation in recommending it. The vinegar of ſquills may be uſed for the ſame purpoſe.

" The antimonial ſolution may, in combination with laudanum, be adminiſtered as a diaphoretic; but, when the febrile ſymptoms run high, I ſhould prefer giving the ſolution by itſelf, ſo as to occaſion a continued nauſea.

" I have ſeldom omitted the application of a bliſter to the neck, and I believe it is a valuable addition to the plan of cure, although I cannot affirm this upon my own experience. Bliſtering has proved, however, ſo uſeful in ſimilar diſeaſes, and is ſo ſtrongly recommended in this, that it is well entitled to every attention.

" That part of the plan of cure upon which I would chiefly dwell, is bloodletting. If in the inflammatory ſtage it is not, in the firſt inſtance, attended with an abatement of the bad ſymptoms, it muſt be repeated according to the ſtrength of the patient. Should the phyſician diſlike the uſe of the lancet a ſecond time (and indeed in this repetition he will not at all times have the concurrence of the parents), I recommend the application of a number of leeches to the neck.

" The ſecond ſtage of the diſeaſe is known by ſome remiſſion in the phlogiſtic appearances, ſuch as a change in the countenance from a florid to a leaden colour; by the pulſe getting ſmaller; and by the difficulty of breathing continuing or increaſing, the child frequently breathing eaſieſt in poſtures which might be thought moſt unfavourable to reſpiration; and by a ſediment in the urine. From having obſerved in diſſections that the thyroid veins are very turgid, I have been induced, in this ſtage of the diſeaſe, to apply leeches to the neck; I have alſo uſed emetics, to procure, by the agitation which they produce, the expectoration of the membrane, ſhould it occupy, as ſometimes happens, only a ſmall ſpace in the trachea. The bowels are to be kept open by clyſters; and the low regimen obſerved in the firſt ſtage is to be laid aſide, and the ſtrength of the patient ſupported."

Calomel, which ſome have ſo ſtrongly recommended, the author has never known ſerviceable. And he diſſuades from bronchotomy, becauſe it is impoſſible to know when the membrane is fully formed, or ſufficiently tenacious to be brought away; and, if looſened without extracting it, it will infallibly induce ſuffocation. Nor is the expulſion of the membrane a certain cure; for children have ſunk, he obſerves, after it had, by the uſe of emetics, been expectorated. The operation of bronchotomy, however, has certainly been performed with ſucceſs, and ſhould not, therefore, be abſolutely prohibited; yet there

there are ſufficient reaſons for believing that it will very rarely ſave the patient.

Of the merit of the plates it is ſufficient to ſtate, that the delineations were made by Mr. Charles Bell, of Edinburgh, whoſe excellence in this branch of art is well known. In the ſecond eſſay the author propoſes to treat of the Inteſtinal Diſeaſes of Children. It is to be wiſhed, however, that it may be communicated to the public in a leſs expenſive form. Fifteen ſhillings appears rather an extravagant ſum for 72 pages of letter-preſs, with three or four engravings.

ART. XLV. *A New Medical Dictionary, or general Repoſitory of Phyſic: containing an Explanation of the Terms, and a Deſcription of the various Particulars relating to Anatomy, Phyſiology, Phyſic, Surgery, Materia Medica, Chemiſtry, &c.; each Article, according to its Importance, being conſidered in every Relation to which its Uſefulneſs extends in the healing Art. By* G. MOTHERBY, *M. D.* 5th Edition: *reviſed and corrected, with conſiderable Additions, by* GEORGE WALLIS, *M. D. Author of the "Art of preventing Diſeaſes, and reſtoring Health;" an "Eſſay on the Gout;" and Editor of "Sydenham's Works, with Notes;" &c.* Folio, 811 pages, price 3l. 3s. London, 1801. JOHNSON.

THE work now for the fifth time preſented to the public is too well known to medical readers to require any particular notice. Of the preſent edition it may be ſtated, that it neither is ſufficiently purged of the errors of the preceding, and which the diſcoveries in ſcience render daily more numerous, nor does it ſufficiently embrace the improvements effected of late years in various branches of medical

science, and which have in a great measure rendered the formerly prevailing doctrines obsolete. The improvements the most unequivocal which have been made are, the accenting the words of Greek and Latin origin, and the giving the derivations themselves.

Amongst the articles unaccountably omitted may be mentioned, the employment of acids and other analogous remedies in lues venerea; the interesting speculations of Dr. *Rollo* on diabetes; the use of the mineral acid fumigations for the destruction of contagion; *cum multis aliis.*

ART. XLVI. *A Review of the Improvements, Progress, and State of Medicine, in the 18th Century; read on the first Day of the 19th Century before the Medical Society of South Carolina, in pursuance of their Vote, and published at their Request. By* DAVID RAMSAY, *M. D.* 8vo. Charleston, South Carolina, 1801.

A Review of what has been effected in the Science of Medicine in the course of the past century cannot but afford matter of great and just congratulation to the physicians of the present day. Discoveries the most useful have been made, whilst still more errors of former periods have been expunged; and the condition of society hence unquestionably much ameliorated. The principal improvements in this way of the 18th century are here held up to view, and the due tribute of praise assigned to their various authors. Dr. *Ramsay* thus winds up his very interesting account.

"While we bid adieu to the 18th century, we cannot but recollect its many triumphs: in it the human race have been more safely ushered into life, and in their passage through it many of their unavoidable sufferings have been considerably lessened; in it every branch

branch of medical knowledge has been carried to an amazing extent; every department of the healing art has been improved; the chances for health and life have been enlarged; the avenues to death have been contracted. The deaf have been taught to underſtand; the dumb to converſe; the blind to ſee; and the apparently dead have been raiſed to life. We may reaſonably indulge an honeſt pride for having been bred to ſo uſeful a profeſſion, and for being members of ſo reſpectable a fraternity. Among the practitioners of medicine in the eighteenth century are to be numbered ſeveral of the greateſt, wiſeſt, and beſt of men, who have been the ornaments of human nature, and the benefactors of mankind. In ſupport of this aſſertion I need only call your attention to the names of Boerhaave, Ruyſh, Haller, Monro, Cheſelden, Hoffman, Heiſter, Mead, Petit, Sloane, Morgagni, Pringle, Cullen, Gregory, Hunter, Fothergill, Tronchin, Pott, Warren, and many others, who were the lights of the world, and men of the moſt extenſive erudition and unbounded philanthropy; who ſpent their lives in acquiring and diffuſing a knowledge of the means of prolonging life, preſerving health, and leſſening human miſery.

"In our own State, what ancient inhabitant of Carolina who has not heard the names of Lining, Moultrie, Chalmers, and Garden, mentioned with the greateſt reſpect, as gentlemen and phyſicians of the firſt character for uſefulneſs and reſpectability? Since the eſtabliſhment of our ſociety, we have been witneſſes of the great profeſſional merit, and the high place in the hearts of our citizens, which was held by Turnbull and Fayſſoux; and of the high expectations which were formed from the youthful merit of Bartram and Lehré."

ART. XLVII. *A Philosophical Treatise on the Passions. By* T. COGAN, *M. D.* 2d Edition, corrected. 8vo. Bath, 1802.

THE importance of anatomical knowledge, or a knowledge of the structure of the human frame, to the practical physician is universally admitted; nor is the utility of the investigation of *Mind*, and its influence on the living actions, less to be questioned. If we advert, the author observes, to the strong impression made by every violent emotion upon the corporeal system, we shall not be surprized that the sudden and powerful changes produced should, under certain circumstances, exert a medical influence in common with many other causes that act powerfully upon the body. Accordingly the passions and affections of the mind have uniformly had a place given them by physicians among the *non-naturals*, as they are termed, or those incidental causes which may occasionally induce either a salutary or morbid effect upon the body, such as air, exercise, rest, watchings, medicaments, food, heat, cold, &c.

It was not, however, the intention of the author to treat fully of the subject in this point of view, but rather to present a general and philosophical view of it, adapted more to the general reader than the medical philosopher; yet it is calculated, by its manner and style, to interest the latter as well as the former in no inconsiderable degree.

ART. XLVIII. *Observations Medico-Chirurgicales, &c. Medico-Chirurgical Observations, collected at the Clinical Institute of Jena. By* LODER, *Professor of Surgery.* 8vo. 1794. (Bib. Germ.)

THIS

THIS collection contains a number of practical obſervations and caſes, intereſting to practitioners not ſo much by their rarity or extraordinary occurrence as by their frequency. Many of them, however, preſent but little novelty to a Britiſh reader, and need not therefore detain us. The reſt we ſhall briefly notice.

The firſt ſubject of the author's remark is amputation. The intention here is, to recommend to the general adoption of ſurgeons on the Continent, where, it ſeems, it is little known or practiſed, the improved method of operating pointed out by Mr. Alanſon, and which conſiſts in obliquely dividing the ſoft parts, ſo as to admit of the bone being ſawed conſiderably above the firſt inciſion of the integuments, and, after the operation, to permit the ſides of the wound to be brought into cloſe contact, and healed by the firſt intention. Hitherto, it ſeems, this method of operating has been little attended to on the Continent; and the object of M. *Loder* on the preſent occaſion is, to recommend it to his pupils, and to induce them to ſubſtitute it for the common double inciſion. Experience has convinced him, he obſerves, that, in the diviſion of the muſcles, the greateſt attention ſhould be paid, that the oblique direction of the inciſion be equal and uniform in the whole circumference; and that the limb, during the operation, be neither in a ſtate of complete extenſion nor of flexion. He thinks it needleſs to preſerve much ſkin previous to making the inciſion of the muſcles; for the more oblique the ſection of the fleſh is, the leſs ſkin is required to cover it, the borders of the wound being ſo much the thinner.

M. *Loder* conſiders it of no importance in Alanſon's method that the oblique ſection of the muſcles ſhould be performed by a ſingle ſtroke: we may, he obſerves, firſt cut the muſcles on one ſide of the thigh, and afterwards thoſe on the other, provided they be cut obliquely. In the amputation of the leg, he makes but a ſingle flap, about three inches in length at a

medium. The amputation of the penis, when required, he obſerves, is neither ſo painful nor ſo dangerous as is commonly repreſented.

In caſes of phymoſis, when the contraction is not very conſiderable, it may be overcome by gradual diſtenſion; otherwiſe, the operation is the only remedy. A ſimple diviſion of the prepuce is ſeldom ſufficient in theſe caſes; it is in general neceſſary, he thinks, to have recourſe to circumciſion.

Authors, in general, ſpeak much of the danger of gangrene in paraphymoſis; but M. *Loder* thinks their fears in this reſpect greatly exaggerated. He has ſeen many caſes where, other means being tried without effect, the operation was not reſorted to for ſeveral days; yet no ſymptom of gangrene took place. Cold fomentations, of the ſaturnine kind, he has in general found effectual in diſperſing the tumefaction.

Attempts to reduce old luxations, the author remarks, are not only painful, and in general ineffectual, but are ſometimes accompanied with danger. Some inſtances are adduced where violent inflammation and effuſion followed, and which terminated in a gangrene that proved mortal.

M. Loder ſpeaks ſtrongly in favour of the actual cautery, or moxa, in obſtinate and deep-ſeated pains. In applying the latter, he cautions us to let the whole cylinder of cotton burn out; as it is, he obſerves, the laſt impreſſion of the fire which has the greateſt efficacy. He rarely confines himſelf to a ſingle cylinder, but commonly applies two, and even three or four, on the ſame ſpot. The pain which the ſecond occaſions is much leſs than the firſt, and ſtill diminiſhes on further repetition.

In curvatures of the ſpine, the method of our countryman Pott is ſtrongly recommended; but M. Loder adviſes, that in obſtinate caſes an inciſion be made on the ſides of the affected vertebræ, down to the bone, and that theſe wounds be converted into iſſues. Superficial

perficial ulcers, he obſerves, however excited, are of no uſe in ſuch caſes.

ART. XLIX. *Eſſai ſur la Nutrition du Fœtus: An Eſſay on the Nutrition of the Fœtus. By* J. F. LOBSTEIN, *M. D. Profeſſor at the School of Medicine of Straſbourg.* 4to, 150 pages, with 2 plates. Straſbourg, 1801.

(From Bibliotheque Francoiſe, An. 3. No. 4.)

IN whatever point of view we conſider the proceſs of *generation*, it will for ever preſent an abyſs of myſteries unfathomable, probably, by the human faculties. Its phenomena, however, paſs daily before our eyes; we find them taking place in every animal and in every plant. Living beings ſeem to be tenants for life only *(uſufruitiers)*, and to poſſeſs an immortal eſſence lodged in mortal bodies: the individuals are mere paſſengers on the earth, but the ſpecies is permanent: the mould ſubſiſts, whilſt the impreſſions are inceſſantly deſtroyed.

Our life emanates from that of our parents, and thus, by ſucceſſive progreſſions, we remount to the prime Mover of all exiſtences. Life is like a noble river, which, iſſuing from the boſom of nature, gradually loſes itſelf in the immenſity of ages. "We never caſt anchor in this river of life," obſerves a writer of our own times, "but, by the faculty of reproducing ourſelves, we enjoy a fugitive immortality." The celeſtial fire of *Prometheus* perpetuates itſelf from age to age, as a lamp that burns eternally in the torrent of time.

The greater number of phyſiologiſts, having felt the inſurmountable difficulty of explaining this formation of new beings, and the emptineſs of hypotheſis, reſolved to examine the phenomena in their various lights,

lights, hoping to illuſtrate ſome points at leaſt, and to extract by dint of labour what they could not accompliſh by any ſingle effort of genius. But the taſk is long, experiment is uncertain, and the field vaſt and obſcure.

The author of the preſent attempt, already known by ſome eſteemed productions on medicine, endeavours to diſcover the mode by which the fœtus is nouriſhed in the body of its mother. The eſſay is divided into two parts, the firſt of which contains the deſcription of the membranes which envelope the embryo, and conſtitute the human ovum. The moſt external layer is the ſpongy chorion, or the *membrana caduca* deſcribed by Dr. Hunter, who imagined it to be formed by the exudation of a plaſtic lymph on the interior ſides of the uterus after coition: under this is ſituated the true chorion. The interior tunic is the *amnios*, which contains the water in which the embryo floats.

M. Lobſtein ſuppoſes that the vital powers of theſe membranes are derived from the mother in the human ſpecies; but that, in viviparous quadrupeds, the ovum becomes inſulated from her; whilſt, in oviparous animals, the eggs of which enjoy a life of their own, they are altogether independent of the mother. The tunics of the human ovum perform in general the ſame functions as thoſe of the exhalant membranes; and the author thinks, with *Boerhaave*, *Duverney*, and many others, that the fluid of the amnios tranſudes from thoſe membranes by the uterine veſſels which ramify on them. In proportion as the term of parturition approaches, there is found leſs and leſs of the *liquor amnii*. This fluid is found likewiſe in the ova of all other animals.

The principal object of the author is to ſhew that the embryo nouriſhes itſelf from this liquor of the amnios by abſorption through the inhalent veſſels of the ſkin. We have ſeen fœtuſes without a head, others without

without a mouth, and without an umbilical cord: the embryos of oviparous animals are even inſulated from the mother; they muſt, therefore, receive their nouriſhment from the ovum itſelf. *Boerhaave*, *Heiſter*, *Graaf*, and others, have thought that the fœtus ſwallowed the liquor amnii; for this fluid has been found in its ſtomach. According to *Hippocrates*, *Ariſtotle*, *Galen*, and many moderns, the umbilical cord carries the nutriment from the mother to the embryo: but fœtuſes have been obſerved without a navel; it appears, therefore, that the moſt common and ready way for their nutrition is abſorption by the ſurface of the body. The experiments of *Brugmans* demonſtrate that the liquor amnii is capable of penetrating the ſkin; nor does the layer of white matter, like cheeſe, which covers the fœtus, prevent the introduction of the fluid. M. *Lobſtein* is led to believe that this cheeſe-like matter is not a depoſition from the liquor amnii, but an excretion from the ſkin of the fœtus itſelf. *Kaw Boerhaave*, *Levret*, *Buffon*, *Harvey*, &c. long ſince aſcertained the alimentary quality of the liquor amnii. *Alcmeon*, according to *Plutarch*, ſuppoſed that it was abſorbed by the ſkin of the fœtus; and *Vieuſſens*, and others, adopted this opinion, which M. *Lobſtein* at preſent defends againſt *Haller*. The opinion, therefore, is not a new one; though it is here preſented to us with much weight of argument, and with much of probability in its favour. From the reſearches of modern chemiſts it appears that the liquor amnii is of an albuminous nature, and therefore capable of affording nouriſhment.

Further; it is not demonſtrated that the veſſels of the uterus anaſtomoſe with thoſe of the placenta; nor does it appear that the mother has any direct influence over the fœtus: the fluids of the placenta, however, certainly proceed from the mother; but they form detached and ſeparate ſyſtems. The fœtus poſſeſſes only 27° of heat (about 92° of Fahrenheit's ſcale); whilſt

whilſt that of the mother riſes to 30° (98° Fahr.). The functions of the placenta have been compared with thoſe of the lungs; and the author thinks that the blood of the fœtus really acquires a ſtimulating quality in its paſſage through this organ. The cauſe of the retardation of the growth of the fœtus, in the latter periods of pregnancy, depends in part on the difficulty of the cutaneous abſorption, and partly on the diminution of the nutritive qualities of the fluid.

The work is illuſtrated by two engravings. In the firſt is repreſented the figure of a human ovum, protruded at the fiftieth day, and laid open in order to diſplay the interior part or cavity which contains the young embryo. The ſecond *table* exhibits a portion of placenta injected, and a branch of the fibrous part of the chorion, as it appears in the microſcope.

ART. L. *Synopſis Noſologiæ Methodicæ, exhibens Clariſs. virorum Sauvageſii, Linnæi, Vogellii, Sagari, Macbridii, et Culleni Syſtemata Noſologica. Auctore* GULIELMO CULLEN, *M. D. Editio Septima.* 8vo. 366 pages, price 7s. Edinburgh, 1802.

THE moderate price and compaſs of the preſent edition of this much admired work of the venerable Cullen will, no doubt, ſufficiently recommend it to the medical ſtudent. But it has likewiſe the advantage of greater perſpicuity, and a more methodical diſtribution. The compreſſed form of the pages preſents a more diſtinct and connected view of the claſſification, the relation of the different ſubdiviſions to the *claſſes* and *orders*, and their dependence on each other.

In the ſyſtems of *Vogel* and *Sagar*, the obſervations and remarks which tend to load and obſcure the genera

genera are either expreſſed in a diſtinct character, or thrown into the form of notes: ſome trifling change, too, is made in the diſpoſition of Dr. Cullen's own ſyſtem. A ſynoptical table of the *claſſes*, *orders*, and *genera*, is ſubjoined, exhibiting at one view the whole of the Cullenian ſyſtem.

An Engliſh tranſlation of the *Synopſis* has been lately publiſhed by the editor of the preſent work, but which is liable to material objection. A great part of the titles have certainly no correſponding terms in our language, and nothing but confuſion can be expected to ariſe from the uſe of ſuch as are inadequate.

ART. LI. *Traité des Maladies Goutteuſes. A Treatiſe on Gouty Diſorders. By* P. J. BARTHEZ, *Phyſician to the French Government, &c. &c.* 8vo. 2 vols. 14s. Paris, 1802. Imported by T. BOOSEY.

IN the much-laboured work before us the author enters minutely into the hiſtory and treatment of arthritic or gouty affections; citing, with great induſtry, the opinions of the various writers on the ſubject, and terminating with his own theory of the diſeaſe, and the mode of cure which he has found moſt ſucceſsful.

The preface exhibits a general idea of the author's theory both of gout and rheumatiſm, which he conſiders as nearly allied in their nature and treatment. In order to the formation of every gouty affection, he obſerves, the joint operation of two cauſes is requiſite, and theſe carried to a high degree: one is, a diſpoſition in the conſtitution to the production of a gouty ſtate in the ſolids and fluids; the other a relative debility of the organs which are the ſeat of the diſeaſe.

The

The gouty condition of the ſolids is a peculiar affection, ſupervening to the vitiated ſtates, either of conſtriction or relaxation, with which they may be affected, and which give to each a peculiar permanence. It appears extremely probable to the author that this gouty ſtate of the ſolids is produced by the action of a *power,* which he terms *force de ſituation fixe* *, between the parts of the fibrous tiſſue; an expreſſion which, as we do not perfectly comprehend the meaning of, we ſhall not attempt to tranſlate: but at all events it muſt be admitted, he thinks, that a *ſpecific gouty ſtate* exiſts in thoſe caſes, eſſential to conſtitute this malady, but of which the nature is unknown to us.

Obſervation equally proves, the author obſerves, that a *ſpecific gouty affection* takes place in the fluids of the body. This gouty affection of the humours is a vitiated mixture which interrupts, more or leſs, the natural formation of the excrementitious humours; ſo that the ſpontaneous decompoſition which thoſe humours undergo occaſions a greater ſeparation of the earthy ſubſtance. The earthy matter, thus in exceſs, has a ſpecial affinity with the nutritious juices of the parts belonging to the joints; and this affinity again determines theſe humours generally to fall on thoſe parts, more particularly when they chance to labour under a relative debility. They are carried there by fluxion, in which are obſervable divers local and ſympathetic ſymptoms, and which terminates by critical excretions.

In the rheumatiſm, which is a diſeaſe nearly allied to gout, the rheumatic-gouty ſtate interrupts, in like manner, the natural formation of the excrementitious humours; and we ſee, beſides, that the lymphatic parts of the blood are more intimately blended to-

* This expreſſion, here given in a detached way, is peculiar to the author, and is explained in ſome others of his works, which we have not ſeen.

gether

gether than in the natural ſtate, and are too much ſeparated from the other conſtituent parts of this fluid. It is alſo probable, the author thinks, that in both the acute and chronic rheumatiſm the muſcular fibres are affected in a more conſtant way than in health by the action of the power above mentioned *(force de ſituation fixe)*. In the chronic rheumatiſm, in particular, this condition may exiſt in the fibres, with a ſtate of phyſical coheſion greater or leſs than the natural; with a ſtate of conſtriction as well as one of relaxation.

The ſpecific ſtates with which the ſolids and fluids are affected in gouty diſeaſes appear to belong to the ſame radical affection of the principle of life. This principle, as it is modified in gout, ſeems to fix the tonic movements of the fibres, and, at the ſame time, to excite an inteſtine commotion of the fluids, which hinders the *diſ*gregation of their conſtituent parts.

This theory, it is evident, throws no new light on the intimate nature of gouty action, which is not at all illuſtrated by being called *ſpecific*. We gain no clue from hence to guide us in the difficult mazes of the treatment, which muſt ſtill continue to be regulated by experience alone.

The work is divided into three books. In the firſt, the author treats of articulatory gout, having its ſeat in the parts in the vicinity of the joints.

The ſecond treats of the rheumatiſm, and other diſeaſes of the ſame family.

The third treats of internal gout, or gout affecting the viſcera, and which is conſequent to that of the articulations.

The methods of treating diſeaſes in general, the author obſerves, are threefold; the *natural*, the *analytical*, and the *empirical*. The *natural* method has for its object to prepare, facilitate, and fortify the ſpontaneous movements of Nature, in her endeavours

to bring about a cure. The *analytical* method of treating a diſeaſe conſiſts in ſeparating and attacking its elements or component ſymptoms, by means proportioned to their force and influence. In the *empirical* method, the object is to change immediately the whole form of the diſorder, by remedies indicated by reaſon, and founded on experience of their utility in analogous caſes. This method is eſpecially applicable to diſeaſes where there is reaſon to fear that the ſpontaneous movements of nature are inſufficient to operate the cure, and in thoſe which we are unable to decompoſe into their elements, and where there are no certain indications to be obtained.

The author then applies thoſe general principles of cure to the various forms of gouty affection. In the ſimple and regular attacks of the joints, the *natural* method of cure is to be preferred. When the ſymptoms of fluxion, pain, and fever, run high, as is ſometimes the caſe, recourſe muſt be had to the ſecond or *analytical* method. In the treatment of irregular and prolonged attacks, neither of thoſe methods is ſufficient, and the *empirical* muſt be reſorted to, and which is very various, according to circumſtances.

In the ſecond *book*, the treatment of rheumatiſm, and other analogous affections, engage the author's attention. In the early and acute ſtages of theſe, the *analytical* method is to be employed, for the purpoſe of relieving the particular ſymptoms, which in this caſe are often violent. In the decline of the diſeaſe, the *natural* plan is to be purſued, with the view of ſeconding the efforts of nature in the cure. Theſe two methods of treatment, the analytic and the natural, are in general the only ones adapted to the acute ſtate of rheumatiſm. We have ſeen, indeed, other methods occaſionally ſucceed, where violent and repeated revulſive evacuations have been employed; but experience has ſhewn them to be often followed by

by great inconveniences, and their general application is dangerous.

In the chronic forms of rheumatiſm, the natural movements are far too weak, tardy, and uncertain, to admit of the *natural* method of cure. Nor is the *analytical* better adapted, becauſe the elements of the diſeaſe, the fluxion, fever, and pain, are too little predominant to require ſuch treatment, or to admit of the diſeaſe being thus removed. The *empirical*, therefore, is the method adapted to the chronic forms of the diſeaſe, and conſiſts in the employment of ſuch remedies as make a powerful diverſion from the affected parts, or raiſe a general commotion in the ſyſtem, and eſpecially ſuch as are ſpecifically calculated to remove the rheumatic ſtate of the ſolids and fluids; as the various excitants and relaxants.

The third *book* explains the method of treating internal gout, or gout when it attacks the viſcera. Internal gout, which is conſequent to that of the articulations, is of two different kinds, according as it is produced by external agents applied to gouty articulations; or by an internal affection, determining the gout to fix on any of the viſcera. This ſpecies of the diſeaſe can only be properly treated on the analytical plan, which muſt be accommodated to the nature and ſeat of the prevailing ſymptom, and which may be inflammatory, or ſpaſmodic, and muſt be treated accordingly.

Such is the general idea of the author's plan, which is afterwards developed and applied in detail to the various and multiplied forms of gout and rheumatiſm. The doctrine and treatment are occaſionally illuſtrated by a reference to caſes which paſſed under his obſervation, and that of other practitioners.

ART. LII. *A Syſtem of Chemiſtry.* In four Volumes. *By* THOMAS THOMSON. *M. D. Lecturer on Chemiſtry in Edinburgh.* 8vo, price 1l. 16s. Edinburgh, 1802. London, ROBINSON.

THE work before us undoubtedly deſerves to rank with the beſt elementary treatiſes we at preſent poſſeſs on the ſubject of chemiſtry. Original compoſitions of this kind have, as the author juſtly obſerves, but rarely made their appearance in Britain. Our philoſophers have been more anxious to extend the limits of ſcience, than to facilitate its progreſs by the conſtruction of elementary works. Our ſyſtematic treatiſes have been chiefly tranſlations from foreign writers, though the diſcoveries of our own philoſophers had furniſhed a conſiderable proportion of the materials of thoſe works. The conſequence, it is remarked, of this defect has been, what indeed was naturally to be expected, that their labours have been frequently overlooked, and their diſcoveries claimed by thoſe to whom they did not belong; while theſe claims, conſtantly inculcated in all the elementary treatiſes on chemiſtry, have been received as firſt principles by the greater number of readers.

The peculiarities of the preſent work are thus announced by the author in his preface. "Several valuable treatiſes of chemiſtry," he obſerves, "have appeared in this country within theſe eleven, twelve, or fourteen years, which muſt have contributed very conſiderably to produce that taſte for the ſcience, now become general. But as theſe were intended only to give a clear outline of the firſt principles of chemiſtry, they by no means ſuperſede the following work, which has a different object. It was thought that a full detail of the vaſt number of facts which conſtitute this important ſcience, blended with the hiſtory of their gradual developement, and of the theories which

which have been founded on them, and accompanied with exact references to the original works in which the different diſcoveries have been regiſtered, was ſtill wanting. The work now offered to the public was intended to ſupply this deficiency: but the author would by no means inſinuate that he has ſucceeded completely. The taſk was too difficult to be executed at once, or perhaps by one man. Defects, therefore, and omiſſions will doubtleſs be diſcovered in the enſuing work. But the author flatters himſelf that it contains at leaſt a more complete collection of facts than any publication of the kind which has hitherto appeared, not even excepting the voluminous, and in many reſpects excellent, work of the celebrated Fourcroy; a work which certainly contains the fulleſt and beſt arranged view of that branch of chemiſtry which the French claim as their own excluſively, and which they have dignified with the title of *French Chemiſtry*, * that has hitherto appeared. But in other branches of the ſcience the *Syſteme des Connoiſſances Chimiques* is more defective. Its merit, however, is every where great, and the author of the enſuing treatiſe has frequently availed himſelf of it, as will be ſeen by the references.

" The arrangement which has been followed in the preſent work, though it differs conſiderably from what is uſually adopted by chemical writers, appeared upon mature reflection to be well calculated to give a clear and diſtinct view of the ſubject, and to conduct the learner without embarraſſment from one ſtep to another, till the whole of the ſubject open to his view. The eaſieſt parts of the ſcience have been placed firſt; no previous knowledge of them has been ſuppoſed; and every term is explained as ſoon as it is introduced. An outline of a conſiderable part of it has been already publiſhed in the Supple-

" * Forgetting that moſt of the facts were ſupplied by Dr. Prieſtley and Mr. Cavendiſh, and a conſiderable portion of the theory by Dr. Black."

ment to the Encyclopædia Britannica; but it has now received very conſiderable alterations and improvements."

Of the propriety of the mode of arrangement adopted by the author, in preference to thoſe more uſually followed, different opinions will probably be entertained. Every mode, indeed, has its advantages and its imperfections; and by preſenting the objects in different points of view, they may contribute to render our acquaintance with them more accurate and minute than either of them ſingly could do. An objection might be made to the plan of beginning with the moſt ſimple bodies; which is, that it is in their compounded ſtate that they moſt frequently are preſented to us; and if they are firſt to be treated of as ſimple, they muſt be again conſidered, after, perhaps, a long interval; that is, not till the various bodies reckoned ſimple have been gone through. Thus, for inſtance, *oxygen* is the firſt ſubſtance here treated of; but it is not till we arrive at the ſecond volume, that *acids* are conſidered, though it is to theſe that oxygen bears the moſt important of its relations. It would ſeem preferable, therefore, to begin with thoſe bodies or principles which exerciſe the moſt diſtinguiſhed part in the whole of chemical actions; and in this reſpect *caloric*, unqueſtionably, claims the preference. But this, as was ſaid before, is in great meaſure matter of opinion; and changes will ſometimes be introduced for the ſake of novelty only. At all events, however, the Syſtem here preſented to us poſſeſſes no ordinary claims to notice, and affords the moſt deciſive proofs of the author's general accuracy and aſſiduity.

ART. LIII. *Journal de Medecine, Chirurgie, Pharmacie, &c. Journal of Medicine, Surgery, Pharmacy, &c. By Citizens* CORVISART, LEROUX, *and*

and BOYER, *Profeſſors at the School of Medicine at Paris.* Vol. I., 12mo. 592 pages. Paris, 1801.

THE ancient *Journal de Medecine*, which was publiſhed at Paris during a conſiderable part of the laſt century, is well known to medical readers as a valuable collection of important practical facts and obſervations. It commenced in 1754 under the conduct of M. *Vandermonde*, who continued it down to the year 1762. From this period till 1776 it was edited by M. *Roux*; and afterwards by M. M. *Dumangin* and *Bacher* till 1781. From this period till the year 1795, when this, with moſt other eſtabliſhments, ſunk in the vortex of the French revolution, M. *Bacher* alone had the conduct of it. Of this uſeful work the preſent is intended as a continuation, and appears to be conducted on a nearly ſimilar plan. When the characters of the editors are conſidered, and their opportunities for making and collecting obſervations, no doubt can be entertained of its proving an intereſting and highly uſeful undertaking. It is publiſhed in numbers, monthly, ſix of which compoſe a volume. It is our intention to preſent our readers occaſionally with the moſt intereſting parts of the collection.

The firſt article we ſhall notice, though not the firſt in order, is an hiſtorical Memoir on the Eſtabliſhment of *l'Ecole de Medecine* (School of Medicine) of Paris: it will ſerve to ſhew the preſent ſtate of medical education in France, and may hold out ſome things perhaps not undeſerving of imitation elſewhere. It is drawn up by M. *Huſſon*.

The law of the 8th of Auguſt, 1793, which ſuppreſſed the Univerſities, the *Faculty of Medicine*, the *Academy*, and the *Colleges* of Surgery, and the other literary corporations, gave riſe to the greateſt abuſes both in the practice and teaching of medicine, and which prevailed for ſeveral years, till corrected by the inſtitu-

tion of new laws on the ſubject in the year 1796. By theſe, which tended to the re-union of two branches of a ſcience which ought never to have been ſeparated, were eſtabliſhed a ſchool of medicine at Paris, another at Montpellier, and a third at Straſbourg: it is the firſt of theſe which is here conſidered.

The Pariſian ſchool, then, conſiſts of, at preſent, three hundred pupils, brought together from different parts of the republic, and claſſed according to capacity, previous knowledge, and ulterior deſtination. The greateſt care is taken to fill up the time of the pupils to the beſt advantage. To the daily lectures, which are given with the greateſt exactneſs and caution, ſucceed practical exerciſes, which employ the intervals of ſtudy, and in which all the pupils are indiſcriminately engaged. To theſe are added frequent examinations, which at the ſame time that they ſtimulate the zeal of the ſtudents, afford a ſtandard of their proficiency and acquirements.

Valuable collections of anatomical preparations, chirurgical inſtruments, pharmaceutic and chemical apparatus, depoſited in proper cabinets, ſerve to recal and fix in the memory the inſtructions previouſly received in the amphitheatre or lecture room. An extenſive library, formed in part from the collections of the ancient *Faculty of Medicine*, and of the *Academy of Surgery*, affords additional facility of inſtruction. The moſt important of the whole, perhaps, are the clinical hoſpitals, which make a part of the eſtabliſhment; where the ſtudent acquires the main object of his former labours,---practical knowledge; and is thus fitted for the real exerciſe of the moſt important of arts.

To theſe are annexed a practical ſchool, where ſuch ſtudents as have, in their public examinations, given deciſive proofs of their talents and application, are permitted to perform chirurgical operations, diſſections, chemical and pharmaceutical experiments, under the immediate guidance of the ſuperintending profeſſors. A medical ſociety has been formed by the pupils,

pupils, on the plan of the Edinburgh Medical Society, where the members diſplay the fruit of their reſearches, propoſe their doubts, and, by mutual diſcuſſion, and the occaſional aid of the profeſſors, who ſometimes aſſiſt at the ſittings, learn to reſolve them.

After three years ſtudy, and having given a public teſt of their qualification, the pupils are appointed to fill ſituations in the army, public hoſpitals, and central ſchools; where they have an opportunity of repaying, by their ſkill and aſſiduity, the cares and charges beſtowed on them in their education. From an eſtabliſhment ſo conſtituted, and acting up to the ſpirit of the inſtitution, what may not be expected? The celebrity of the ſchool, and the talents of the teachers, have already drawn around them a vaſt number of private pupils, at their own expence, the number of whom already exceeds fifteen hundred.

We return now to the practical part of the volume. The firſt article we ſhall notice is, a caſe of encyſted dropſy of the liver, with an hydatid contained in the ſubſtance of the great lobe. This caſe ſuggeſts nothing particularly new or important.

The ſecond obſervation contains an account of a young man who firſt complained of difficulty of breathing, with cough, palpitations of the heart, and occaſional bleeding at the noſe. Theſe ſymptoms went on increaſing for a year or two, with the addition of great pain in the head, bloodſhot eyes, diſturbed ſleep, frequent faintings, general flushing of the ſkin, which was of a deep red hue, and, above all, extreme reſtleſsneſs, and inexpreſſible anxiety. Theſe were ſpeedily followed by hydropic effuſion into the cellular membrane and the cavity of the abdomen. He could ſcarcely bear the hand to be laid on the thorax, and the pulſe was frequent, hard, not irregular, but ſtronger on the left than on the right ſide. At length the patient died with every appearance of ſuffocation.

From

From theſe ſymptoms M. *Corviſart* had no heſitation in predicting an organic affection of the heart; and this was verified on diſſection. The effuſion in the cheſt and pericardium were inconſiderable. The heart itſelf was twice as large as natural, eſpecially the left ventricle, and was of extraordinary firmneſs. Its valves were in a ſound ſtate. The veſſels of the brain were gorged with blood.

The effuſion in this caſe the author conſiders as ſecondary, depending on the derangement in the circulation; and he concludes, that organic affections of this viſcus are much more frequent than is ſuppoſed, and that they are often treated as caſes of dropſy, eſpecially hydrothorax, aſthma, ſuffocative catarrh, &c. &c.

The next caſe is of "an anomalous ſanguineous tumour on the fore-arm;" by M. Boyer.—This was an inſtance of aneuriſm of the radial artery coming on without any evident cauſe, and the nature of which was for a long time miſtaken, and fruitleſs operations had recourſe to in conſequence. It was not till an attempt was made for its extirpation that its true nature was diſcovered, though the ſymptoms, even as here deſcribed, might very naturally have led to a ſuſpicion of it. It reſembled, very nearly, the caſes mentioned by Mr. Pott, in the 3d vol. of his works, as occurring under the gaſtrocnemii muſcles of the leg.

"A caſe of cancer ſituated at the great curvature of the ſtomach: by C. Corviſart and Leroux."—In this caſe there was no vomiting, but an almoſt conſtant diarrhœa. It appears, the authors remark, from numerous examinations, that vomiting does not take place in ſchirrous, carcinomatous, and cancerous affections of the ſtomach, except in thoſe caſes only where the pylorus is itſelf the principal ſeat of the diſeaſe, or where the part of the duodenum near it is ſo. In the latter caſe, conſtipation almoſt always ſucceeds the vomiting; whilſt, in the former, viz. where the

the pylorus is free from diſeaſe, there is no vomiting, but an almoſt continued diarrhœa. This difference is readily explained. When the pylorus is diſeaſed, it refuſes a paſſage to the aliment, which is conſequently rejected by vomiting. But when the ſtomach alone is affected, the contrary takes place: the digeſtive function is impeded or aboliſhed altogether, and the food and medicines paſs off precipitately through the pylorus, and ſtimulate the inteſtines to increaſed action.——In the caſe above recited the probable remote cauſe was dram-drinking, particularly in a morning.

(*To be continued.*)

ART. LIV. *A Reply to Dr. Haygarth's "Letter to Dr. Percival on Infectious Fevers," and his "Addreſs to the College of Phyſicians at Philadelphia on the Prevention of the American Peſtilence;" expoſing the Medical, Philoſophical, and Literary Errors of that Author, and vindicating the Right which the Faculty of the United States have to think and decide for themſelves reſpecting the Diſeaſes of their own Country, uninfluenced by the Notions of the Phyſicians of Europe. By* CHARLES CALDWELL, *M.D. Fellow of the College of Phyſicians of Philadelphia, &c. &c. &c.* 8vo. 50 pages. Philadelphia, 1802.

THE caſtigation here beſtowed on our ingenious and learned countryman for what the author terms "his indelicate and domineering intruſion into the medical diſcuſſions of America," may paſs on the other ſide the Atlantic for legitimate and juſtifiable ſatire; but by Britiſh readers in general it will probably be taken for little elſe than vulgar ſcurrility and mere perſonal abuſe, reflecting far more diſgrace on its author than on its object, and called for, as far as we can judge, by no circumſtances that have occurred.

As

As a ſpecimen of the politeneſs and urbanity of the author, the following may be taken. "What ſhall we ſay to the magiſterial pretenſions of Dr. Haygarth in this reſpect? Whence do they originate, and on what are they founded? Where is the fund of experience to ſanction them, or the ſources of obſervation to render them even plauſible? Has the Doctor a ſingle qualification, either natural or acquired, which deſignates him as a man prepared to ſhed light on the ſubject of our late epidemics? Has he ever expatriated himſelf for the purpoſe of enriching the ſcience of medicine by an examination of nature in foreign countries? Has he ever left the temperate atmoſphere of Great Britain to gain a knowledge of the diſeaſes of regions that lie nearer to the ſun? Such a journey might have both expanded his capacity and augmented his information: for the ſun of the tropics has oftentimes ripened into active intellect the hebetude imported from higher latitudes. Has he ever croſſed the Atlantic to ſtudy the climates, the topography, and the diſeaſes of the United Sates? Or does his mind poſſeſs ſuch an exalted ſtation in the region of intellect, as to enable it to overlook the globe, and to deſcry and comprehend, at a glance, the ſcenes that are paſſing in diſtant hemiſpheres? Thoſe who know this gentleman beſt will be the laſt to anſwer theſe queſtions in the affirmative.

"But his conduct may be influenced by different conſiderations. Perhaps he may found the boldneſs of his pretenſions as an author on the maturity of his years. Many writers leſs youthful are more modeſt; and it is to be lamented that grey hairs give no infallible earneſt of either wiſdom or liberality. Does he derive his ſelf-ſufficiency from an education finiſhed in the ſchools and hoſpitals of London and Edinburgh? The public teachers of theſe places, being themſelves inexperienced in true peſtilential diſeaſes, are unable to impart a knowledge of them to their pupils. Is the extent of his reading the cauſe of his imaginary

imaginary ſuperiority over his brethren in the United States? We will not poſitively aſſert that he is not a man of profound erudition; but we have no evidence whatever to convince us that he is. But, be the caſe as it may, books are at beſt but a ſecondary ſource of information, and a mere acquaintance with them ſhould never be ſet in competition with obſervation and experience. But perhaps he may pride himſelf on being a native of the ſame country which produced a Harvey, a Sydenham, a Cullen, and a Hunter. We entreat him to remember, that weeds may infeſt the ground which has been overſhadowed by the lordly Addanſonia, and that the ſame clime gives birth to the lion and the jackal.

"Were Dr. Haygarth much younger than he is, we might aſcribe his preſumption to the inexperience and temerity of youth; and, if much older, we might commiſerate him, as being under the influence of dotage. But, flouriſhing as he is in the meridian of intellectual manhood, we are ſorry to ſay, that we can trace his unbecoming pretenſions and manner to no other ſource but the extent of his ſelf-conceit."

A phyſician who had laboured in the inveſtigation of infectious diſeaſes, and with a degree of ſucceſs in oppoſing them that has been almoſt univerſally acknowledged, ought not, one would have ſuppoſed, to be deemed an intruder, or unqualified to offer an opinion on the deſolating ſcourge which has for ſo long a period been inflicted on the chief cities of America, and which all the efforts of their faculty have hitherto very unavailingly been employed either to cure or to reſtrain; eſpecially, too, when the greateſt contrariety of opinion was ſeen to prevail on the ſubject amongſt the practitioners who were daily witneſſing the ravages of the diſeaſe, both with regard to its origin and treatment.

The great crime of Dr. Haygarth, in the eyes of the *Academy of Medicine of Philadelphia*, appears to

be, his siding with the *College of Physicians* in their belief of the imported origin of the yellow fever; a position which the members of the *Academy*, collectively and individually, have laboured very strenuously to subvert. Yet, coming from such a quarter, it was surely entitled to respectful notice; and it possessed, besides, the strong recommendation, that, while it pointed out those means of prevention which were proper and indispensible if the opinion were well founded, viz. separation, ventilation, and cleanliness, it led to the rejection of none of the other modes of destroying it which the opposite notion suggested. It was an error, if it were one, on the safe side. The precautions advised by Dr. *Haygarth* were of the most simple and practicable nature, and involved no hypothetical notions respecting the nature and constitution of the noxious cause. He did not rely on the strength of his powers to destroy the dire chimæra, but pursued the wiser plan, of preventing its approach. The states of Europe, we trust, are too enlightened to compromise the safety of their population by yielding to the delusions of hypothesis on so important a subject.

ART. LV. *Observations in Medicine and Surgery. By* ADOLPHUS FREDERICK LOEFFLER, *Professor at Altona.* 8vo. 2 vols. Leipzig. (From Bib. Germ. vol. 1.)

THESE volumes were published in Germany eight or ten years ago; but as they contain a variety of important and interesting observations which have not hitherto come to the knowledge of British practitioners, we may be excused for briefly noticing them at this late period.

On some Cases of Epilepsy. This disease, in general so difficult of cure, sometimes appears to depend on trifling circumstances, and which meet with a ready relief

relief from art. This will be ſeen in the following caſes.

An epileptic patient felt, on every attack, a ſenſe of coldneſs at the ſole of the foot, and which gradually aſcended till it reached the head. It occurred to him to make a ſtrong ligature above the knee of the affected limb, before the cold ſenſation had proceeded ſo high. This method ſucceeded; and as often as he took this precaution ſufficiently early, he prevented the attack from taking place.

Another epileptic, at every return of the fit, pointed to a place in the knee, where he experienced a ſenſation of pain. A ſurgeon made an inciſion on the part, and diſcovered a ſmall hard body, which he extirpated. The patient had no attack of his diſeaſe afterwards.

M. *Loeffler* has remarked, he ſays, that, in long voyages, the higher the temperature is elevated, the more the paroxyſms of epilepſy are increaſed in force and frequency. A man attacked with this diſeaſe, but who had ſcarcely a fit once in a month, undertook a voyage by ſea. In proportion as the veſſel approached the equator, the frequency of his fits was augmented, to that degree, at length, that he had as many as thirty in the ſpace of twelve hours. On his return to Europe their number again gradually diminiſhed, ſo that they returned only once in ſix months.

A young man, affected univerſally with the itch, had the eruption ſuppreſſed by imprudent expoſure to cold. A ſhort time after, on receiving a conſiderable fright, he was attacked by epilepſy, which returned about once a fortnight. M *Loeffler* thought of inoculating him for the itch, as for ſmall-pox, with a lancet moiſtened in the virus of the itch; but failed in his attempt to excite the diſeaſe. He then cauſed the matter to be rubbed between the fingers: this was ſoon followed by an abundant eruption, and the epilep-

tic

tic attacks immediately ceaſed, and had not returned during ſeven months, when the caſe was publiſhed.

A young girl who had long been epileptic, and who had uſed a variety of remedies without advantage, was attacked with an eruption of the itch, which completely cured her of her epilepſy.

Dropſy of the lower belly. A young man, fifteen years of age, ill of an intermittent fever, which reſiſted the uſual remedies, was at length cured of it by arſenic. Some time after, the abdomen ſwelled, with all the uſual ſymptoms of aſcites, except that the fluctuation could not be diſtinctly felt. A puncture with the trochar was however made, when a ſmall quantity of a thick gelatinous fluid was diſcharged. This continuing to come away, a mixture of equal parts of vinegar and decoction of the miſletoe, with a little *ſpirit: minderi*, was injected, in the quantity of a few ounces, and the injection repeated once or twice daily. In about three weeks the tumour was entirely removed, without the uſe of any other remedy.

Ulcer of the leg. A man, forty years of age, had for many years a painful ulcer of the leg, the edges of which were livid, dry, everted, and inſenſible. M. *Loeffler* began the treatment by expoſing the ulcer to external heat, by means of a hot iron held for ſome time as near to the ſurface of the part as the patient could bear: it was afterwards dreſſed with pledgits moiſtened with decoction of bark. For the firſt few days the pain was increaſed; the ulcer itſelf, and the neighbouring parts, became inflamed. Shortly after, the yellow fluid which iſſued from the ulcer ceaſed to flow, and the ſurface became dry. The artificial heat was now diſcontinued, and emollient cataplaſms applied: a good ſuppuration took place, and cicatrization ſoon followed.

Suppuration of the bladder. This caſe the author undertook to cure by injections. But as injections into

into the bladder by the urethra are attended with much difficulty, he reſolved to introduce a trochar by the rectum. The canula was ſuffered to remain, and an injection of willow-bark thrown in three times a day. The canula, however, excited ſo much uneaſineſs in the rectum, that it was obliged to be withdrawn; but, previouſly to doing this, M. *Loeffler* faſtened a piece of ſoft ſponge, about half an inch in diameter, to the extremity of a fine ſilver wire: this ſponge was then thruſt through the canula into the bladder, and the canula withdrawn. As the ſponge was larger than the opening in the bladder, it remained there, and the ſilver wire occaſioned much leſs inconvenience than the canula had done. Whenever the injection was repeated, the wire ſerved as a director for the canula, which was thus introduced, and the ſponge withdrawn. This operation was repeated ſixteen times without difficulty, and the patient entirely cured.*

Wound of the intercoſtal artery. When this accident occurs in the operation for the empyema, the author adviſes to make a ſecond inciſion, at the diſtance of about an inch from the former, and nearer the ſpine,

* In a ſubſequent part of the volume is contained a letter from M. Maunoir, an eminent ſurgeon of Geneva, to the editors of the Bib. Germ. in which the propriety of the practice here recommended is called in queſtion. M. Maunoir ſuppoſes, that the difficulty M. Loeffler experienced in throwing an injection into the bladder through the urethra muſt have ariſen from his not employing a canula or catheter for the purpoſe. The puncturing through the rectum he conſiders as a hazardous and unneceſſary practice in ſuch caſes. He conſiders, too, the puncture above the pubis as preferable to that through the rectum. He ſubjoins a caſe of ſuppreſſion of urine, where, on introducing the catheter, it was found that not a drop of water came away, though the inſtrument paſſed as readily as uſual, and the bladder was evidently much diſtended: a few drops of blood only were diſcharged. It appeared, therefore, that the bladder was full of coagulated blood. This, however, was gradually extracted by means of a ſyringe adapted to the catheter, two pounds of blood being thus brought away, mixed with a ſmall portion of urine. Warm water was then thrown in. The bladder became again filled with blood, but this was more eaſily withdrawn, being more diluted with the urine. An injection was then employed, three times a day, of a decoction of bark, nearly at the freezing point, and the patient entirely cured of the hæmorrhagy, and, at the ſame time, of a paralyſis of the bladder, which had ſubſiſted long before.

laying bare the pleura without dividing it. By this means, he ſays, a ligature may eaſily be paſſed around the intercoſtal artery.

On Hernia. Several inſtances having occurred where the inteſtine has been opened in the operation for the bubonocele, ſometimes from accident, ſometimes from a gangrene of the parts, where, nevertheleſs, the patient recovered, M. *Loeffler* did not heſitate to open the inteſtine deſignedly in ſome caſes, where, from the accumulation of foeces, or flatus, he found the reduction impracticable, or even difficult. The reſult, he obſerves, was generally favourable.

ART. LVI. *New Experiments on the Efficacy of the Phoſphoric Acid in Caries, and other Diſeaſes. By* M. LENTIN, *Phyſician at Hanover.* (From the Altenburg Medico-National Gazette, 1798.) Ibid.

THE phoſphoric acid is one of thoſe ſubſtances whoſe ſenſible qualities lead to the ſuppoſition that it may exert ſome particular effect on the living body, the knowledge of which would be deſirable. Several phyſicians have made experiments on the ſubject, and amongſt others M. *Lentin*, of Hanover, who has addreſſed a treatiſe in Latin to the Royal Society of Sciences at Gottingen, and the title of which is, *De Acido Phoſphori Cariei oſſium domitori*, and which has attracted a good deal of notice in that univerſity.

The author obſerves, that the phoſphoric acid is an eſſential part in the conſtitution of bone, ſince it is found to exiſt in it as long as the bone preſerves its ſolid form; whilſt, after the diſſolution of the bone by any chemical cauſe whatever, its earthy reſidue no longer ſhews any veſtige of this acid. This conſideration led him to make experiments, to endeavour to replace artificially, in carious bones, this eſſential principle to their ſolidity, of which diſeaſe had deprived them;

them; and thus to reſtore their natural conſiſtency. For this purpoſe, he covered the ulcers with lint ſoaked in the phoſphoric acid, diluted in a greater or leſs degree with diſtilled water. The ſtrength of the ſolution he commonly employed was, one part of the acid to eight of water. This was renewed twice a day; and, when the ulcers were very deep, he injected a portion of the ſame liquid into their cavity. The whole was then covered with lint moiſtened with tincture of myrrh or maſtich, for the purpoſe of excluding the acceſs of air.

By this means, the author obſerves, the ulcers loſt their foetor, the ſanies was converted into good pus, and exfoliation took place rapidly.

Encouraged by this ſucceſs, and conſidering that the phoſphoric acid enters into the compoſition of the ſoft parts, as well as of the bones, M. *Lentin* applied the ſame remedy in various other affections. He employed it in one caſe of confirmed phthiſis, accompanied with an abundant expectoration of pus, giving the acid ſolution prepared as above internally, every three hours, in the doſe of from twenty-five to thirty drops. The remedy appeared to produce very good effects; the breath loſt its foetor, the fever and expectoration conſiderably diminiſhed, and the patient regained his ſtrength; when, unfortunately, being ſeized with the meaſles, he died. Equally good effects were obſerved in other caſes of phthiſis.

The author cites ſome other inſtances of the good effects of the ſame remedy, from other practitioners. In a caſe of cancer of the uterus, communicated by Dr. *Hacke*, a phyſician at *Stralſund*, the phoſphoric acid leſſened conſiderably the foetor of the diſcharge, and the copiouſneſs of the ſweats. M. *Lentin* recommends it in general as a corroborant; and *Kardiſhauſen*, a diſtinguiſhed naturaliſt at *Munich*, ſpeaks of it highly in the ſame point of view.

M. *Hartenkeil*, phyſician at *Saltzburgh*, announces, in his *Medico-Chirurgical Gazette*, that he has employ-

ed this remedy in a caſe of venereal caries that had deſtroyed the greater part of the bones of the face. He adminiſtered it both externally and internally, giving along with it a ſtrong decoction of the *aſtragalus exſcapus*. He ſucceeded by this means in diminiſhing the foetor of the ulcer and the ichorous diſcharge; but for a time only. The external application of the acid occaſioned a burning ſenſation in the part, and brought on an inflammatory ſtate of the ulcers.

Whatever benefits the application in queſtion may have in reality produced, no attention, we preſume, is due to the mode of action, as here aſſigned. When the ſubſtance of a part is ſo far decompoſed as to have its phoſphoric acid diſengaged and carried away, it is not probable the ſtructure of the part ſhould be capable of reſtitution by any means.

ART. LVII. *Medical and Phyſical Journal, Numbers 45 and 46.* London, 1802. PHILLIPS.

THE firſt article requiring notice in the preſent numbers of the *Journal*, is, 'a Deſcription of a new Inſtrument for performing the Operation of Lithotomy, invented by Citizen *Guerin*, of Paris.'—This innovation is intended to obviate the difficulty of getting into the urethra, after the external inciſion is made; a difficulty which many operators in this branch of ſurgery not unfrequently experience. It conſiſts in adding to the common grooved ſtaff a part which is termed *porte-conducteur*. It proceeds from the handle of the ſtaff, and, forming an arch ſufficient to paſs over the penis and ſcrotum, goes downwards in a ſtraight line to the curvature of the ſtaff. There it ends in an oval caſe, perforated with a round hole of a line and a half in diameter, through which is to paſs a trochar of a proportion-

proportionable ſize, and grooved, to correſpond with the groove in the ſtaff. The ſtaff being introduced into the bladder in the uſual way, the trochar is to be puſhed along the canula through the integuments and muſcles of the perinæum into the groove of the ſtaff, with which it then makes one continuous canal. Through this canal the cutting gorget is introduced into the bladder, and the reſt of the inſtruments withdrawn. The ſuppoſed advantages of this alteration are, that the firſt external inciſion of the perinæum is ſpared to the patient, the ſkin, cellular ſubſtance, muſcles, proſtate gland, and neck of the bladder, being all cut through at once. This mode of operating is ſaid to have been performed with great ſucceſs in ſeveral inſtances, the wounds healing in a much ſhorter time than common, and without any fever. It is evident, however, that a ſlight degree of twiſting in the inſtrument would be ſufficient to direct the point of the trochar to one ſide or the other of the groove of the ſtaff, in which caſe the operation could not be proceeded in without great danger to the neighbouring parts.

The next article is deſigned to recommend a new Mode of treating Ovarian Dropſy, ſo as to procure adheſion of the ſides of the cyſt: but as the remarks are purely ſpeculative, not reſting on either obſervation or experiment, we ſhall not be more particular.

Dr. *Joſeph Clark*, teacher of Midwifery in Dublin, in a letter to Dr. *John Sims*, of London, gives his ſanction to the practice recommended by the latter in a former number of the Journal; viz. that it is not prudent, in all caſes of arm preſentation, to attempt to turn the foetus, it being impoſſible in ſome caſes, where the uterus is very ſtrongly contracted, to complete the operation without the greateſt riſk to the mother. Where the death of the foetus is certain, either by the putrid ſtate of the integuments of the preſenting arm, or by a prolapſed umbilical chord, it appears a ſafer practice to bring away the foetus

piece-meal, than to perſiſt in endeavouring to turn, where much difficulty in ſo doing is encountered

A caſe of Hooping Cough ſuperſeded by the Small-pox is related by Mr. *T. V. Okes:* as ſoon as the eruptive fever ſhewed itſelf, the cough and its concomitant ſymptoms entirely ceaſed, and never more returned. The ſmall-pox was introduced by inoculation, and very mild in degree.

Dr. *G. Bellamy*, of Oreſton, ſtrongly recommends the *Zanthoxylon*, commonly called in the Weſt Indies *Hercules' Club*, as a remedy for inveterate ulcers of the legs, without a conſtitutional affection. He found it to ſucceed in caſes where every other means that could be ſuggeſted had failed. The powder of the bark was applied to the ſore, which was then covered with a piece of dry lint.

Some improvements on the Trephine and other Chirurgical Inſtruments are pointed out by Mr. *Savigny*, ſurgeons' inſtrument maker, which were ſuggeſted by Mr. *Jardine*, ſurgeon, but which we could ſcarcely render intelligible without the engravings.—Dr. *Saunders* ſpeaks highly in favour of the artificial mineral waters prepared by Mr. *Paul*, of Geneva, who has lately come to reſide in this country, for the purpoſe of manufacturing and vending thoſe important articles of the materia medica.

'History of a Girl with an extraordinary Conformation of the Heart; with obſervations on animal heat, illuſtrative of the caſe: by *Martin Tupper*, of Exeter College, Oxford.'—In this caſe the patient lived to the age of 13, but on all kinds of exertion was affected with difficult reſpiration, together with general coldneſs of the body, and a livid hue in the ſkin. On diſſection, the foramen ovale of the heart was found open; and there was likewiſe a deficiency in the ſeptum ventriculorum at the baſis, and diſpoſed in ſuch a manner, that the blood muſt have gone in nearly equal quantities from each ventricle into the aorta. Theſe circumſtances

ſtances ſufficiently account for the ſymptoms obſerved during life. Some remarks are ſubjoined by the author, in which he ſhews that our ideas reſpecting the production of animal heat are by no means as preciſe as could be wiſhed. Indeed, the ſubject is yet far from being well underſtood.

Dr. *Quenſel* of Stockholm, gives an account of his ſucceſs with the Galvanic Pile in the Treatment of various Diſeaſes. In deafneſs he has not experienced any very remarkable effects. In rheumatic affections, conſiderable benefit ſeems to have been received.

Mr. *Leeſon*, jun. ſurgeon, of Grantham, mentions the Effects he had obſerved to reſult from Inflammation in two Caſes of Cataract. In one, where the patient had been blind from his infancy, and where the cryſtalline lens was of a milky hue, a violent inflammation aroſe ſpontaneouſly, and continued for about ten days. A month after the inflammation had ſubſided, it was found that the cryſtalline had become perfectly tranſparent, and has ever ſince remained ſo. The viſion, however, continued as imperfect as before. In the ſecond caſe, there were cataracts in both eyes from infancy, and which appeared to be of the ſoft kind. On puncturing the capſule of the cryſtalline lens, in an attempt to extract it, a milky fluid was immediately thrown out, and diffuſed through the aqueous humour. At the end of a week, the effuſed opaque fluid was abſorbed, and the eye was free from any viſible imperfection: yet the ſight was not at all reſtored. In both thoſe caſes there was probably an original defect in the organ, independent of the opacity in the cryſtalline lens.

The *Seſamum*, commonly called *Vanglo*, or oil plant, in the iſland of Jamaica, is ſtrongly recommended for the cure of Dyſentery, by Dr. *Spence*, of St. Lucia. It appears to poſſeſs no other medicinal power than is derivable from its containing a very pure oil, and its readily forming, by trituration with water, a viſcid and in-

ſipid mucilage: as, however, it appears only to have been employed as an auxiliary, its great medicinal powers may admit of queſtion.

ART. LVIII. *A few General Rules and Inſtructions, very neceſſary to be attended to by both Sexes, who are afflicted with Ruptures. To which are added, a Deſcription, Cauſes, and general Means of Treatment of that Species of Rupture called Prolapſus Ani. By* W. TURNBULL, *A.M., Surgeon to the Eaſtern Diſpenſary, and to the Society for the Relief of the Ruptured Poor, &c.* 12mo., price 2s. London, 1802. BOOSEY. 6th Edition.

WE ſhould not have thought it neceſſary to notice the preſent edition of this little work, but for the new matter it contains reſpecting a very diſtreſſing and troubleſome complaint, prolapſus ani. The remarks on this head are conciſe, but pertinent, and certainly add to the value of the work.

ART. LVIX. *Hints for the Improvement of Truſſes; intended to render their Uſe leſs inconvenient, and to prevent the Neceſſity of an Under-ſtrap. With the Deſcription of a Truſs of eaſy Conſtruction, and ſlight Expence, for the Uſe of the Labouring Poor, to whom this little Tract is chiefly addreſſed. By* JAMES PARKINSON. 8vo. price 9d. London, 1802. SYMONDS.

THE benevolent author of the work before us could not better have beſtowed his labour than in the elucidation of a ſubject ſo very important, particularly to the labouring claſſes of the community, who

who are the great, though by no means the only, ſufferers from this diſtreſſing malady. Much leſs pretenſions to improvement than are here held forth, and much worſe founded ones, have led to a monopoly, by patent, in innumerable inſtances. The author's ſentiments on this head do him infinite honour.

The contrivance here recommended is at once ſo ſimple, and apparently ſo effectual for the purpoſe to which it is deſigned, that we queſtion whether the moſt ſkilful artiſt could add materially to its advantages. As the deſcription of the inſtrument propoſed is not very long, we ſhall give it in the author's own words.

'It is well known,' Mr. P. obſerves, 'that if a piece of ſtick, placed between the coils of a piece of rope, faſtened at each end to ſome ſolid body, be turned round a few times, immediately as the force is removed by which it was turned round, it returns to its former ſituation with conſiderable force. Children avail themſelves of this power to ſupply themſelves with a little toy, a ſpecies of ſpring gun, which they uſe for throwing cherry-ſtones and ſmall pebbles to a moderate diſtance. The ſtring is faſtened for this purpoſe to the two ends of a bent bone, or piece of cane; and a piece of ſtick, inſerted in the middle of the ſtring, is turned round a few times, until, by having ſufficiently twiſted the ſtring, it acts with conſiderable force. If, then, the end of the ſtick is drawn out ſo far, that, when urged by the elaſtic action of the coiled ſtring, it ſhall preſs againſt the one ſide of the cane, it will directly return to its former ſituation, on the removal of any preſſure by which it had been forced round to the other ſide, and thus throw any ſubſtance placed on it to a certain diſtance. It is the application of this principle that is here wiſhed to be recommended. This ſimple inſtrument, it is propoſed, ſhould be ſewed on the outſide of a belt, formed of girth web, firſt fitted with ſtraps, or with buttons and button-holes, exactly

to

to the ſhape of the belly. The ſtick, which ſhould be cut to the ſhape of the pad in the common ſteel truſs, may be furniſhed on the ſide which is to apply to the belly with a pad made with leather, filled with folds of flannel, or ſtuffed with bran. The ſtick being then brought from underneath into the proper poſition, will there act with a degree of force equal to the tightneſs with which the cord has been twiſted; and, if applied in this ſtate, the protruded part being firſt reduced, it will, in general, be found competent to the retaining of it in its natural poſition.

'To form the bow part of this inſtrument, various ſubſtances may be employed; but none ſucceed ſo well as cane or ſteel. Horn or whalebone have their elaſticity too ſoon diminiſhed by the heat and moiſture of the body; admitting, by their increaſed ſoftneſs, their ends to be brought nearer together, by which the cord becomes in the ſame proportion relaxed. If cane be employed, it may be ſcraped or cut away on the ſide which applies to the belly, as well as on the oppoſite ſide, that it may yield leſs inconvenience by projecting. But the preferable ſubſtance for this purpoſe is, undoubtedly, ſteel; a piece of which of about a quarter of an inch thick, and from two inches and a half to three inches in length, will form a bow ſufficiently elaſtic, and which, at the ſame time, will be hardly at all projecting.

'For the ſtring, a piece of cat-gut is moſt uſefully ſubſtituted; but it is beſt to employ a piece which, without being much worn, has been long ſtretched, as that will be leſs likely to yield, and loſe its elaſticity.

'With reſpect to the belt or girth, its width ſhould depend on the prominency of the belly; ſince, if this be conſiderable, the belt ſhould be ſo wide, and ſo ſhaped, as to comprize the whole belly, like the lower part of a waiſtcoat. By this it will be prevented from ſlipping too low, and will be kept in its place without the neceſſity of an under-ſtrap, which is exceedingly

ceedingly galling and inconvenient, but which with this kind of truſs will ſeldom be neceſſary. As, from the ſtrong preſſure of the pad, the other edge of the ſtick is likely to raiſe the edge of the belt, it will be proper to ſew on the outſide of the belt, over the bow, a piece of ſtiff leather, about nine inches in length, and from two to four inches wide, in proportion to the width of the belt. Thus with a moſt trifling expence, and with no more ſkill than is to be found in every village, nay, almoſt in every cottage, may a truſs be formed equal to the effect of retaining the parts in their natural ſituation, and poſſeſſing the advantages of acting exactly in the required direction, and not requiring the troubleſome appendage of an under-ſtrap.'

MISCEL-

MISCELLANEOUS.

§ 29. *Teſtimonial in Favour of* Smyth's Metallic Bougies and Catheters.

MR. TURNBULL, Surgeon to the *Eaſtern Diſpenſary*, and to the *Society for the Relief of the Ruptured Poor*, in a Letter to the Editors, gives a very decided teſtimony in favour of the Metallic Bougies and Catheters lately invented by Mr. *Smyth*, apothecary, of Covent Garden. After ſome prefatory remarks and complimentary expreſſions, which we ſuppreſs as of no importance to our readers, Mr. Turnbull obſerves as follows:

"In the courſe of an extenſive practice, I have experienced many difficulties in caſes of urethral obſtructions, and which principally aroſe from the want of a bougie more efficacious in its operation than thoſe generally uſed. Inſtruments of this deſcription being chiefly formed of leather, cat-gut, or plaſter rolled on linen, ſoon become relaxed by the heat and moiſture of the urethra, and ſeldom poſſeſs a degree of firmneſs ſufficient to enable the operator to paſs them to the ſeat of ſtricture without hazard and inconvenience to the patient.

"For ſome time I read your Review with more than ordinary attention, in hopes of finding that ſome profeſſional man had turned his thoughts to this ſubject, and had communicated the reſult to you for the benefit of the afflicted. My wiſhes were much gratified when I peruſed your account of the invention of Flexible Metallic Bougies and Catheters by Mr. Smyth, apothecary, of Taviſtock Street, and which you ſeemed to conſider a deſideratum in the treatment of

ſtrictures

ſtrictures in the urethra. Mr. Smyth announced that he had found in the mineral kingdom materials for the compoſition of a bougie, which in moſt caſes of ſtricture anſwered the beſt purpoſes; but, not being in the habit of placing much confidence in advertiſements of this deſcription, I would not venture to apply them until they were ſanctioned by the approbation of gentlemen competent to judge of their properties and qualities. Your ſentiments, however, were ſo decidedly in favour of Mr. Smyth's diſcovery, that I determined to purchaſe a few of his bougies, of different ſizes and denominations, that I might be enabled to judge of their utility by experiment; and it is with great pleaſure I aſſure you, that, on the application of the ſolid bougie, my warmeſt expectations were fully ſatisfied: thoſe made hollow I alſo found to anſwer the purpoſe of catheters, where the ſtricture was attended with ſuppreſſion of urine.

" The cauſtic bougie, ſo ſtrongly recommended by ſome gentlemen of deſerved celebrity in the profeſſion, I have found defective. Cauſtic ſubſtances, when applied in caſes of ſtricture or obſtructions in the urethra, can ſeldom be adminiſtered without giving the afflicted perſon a conſiderable degree of pain, and are often attended with dangerous conſequences.—The flexible metallic bougie, on the contrary, creates neither irritation nor pain during the introduction, and accelerates a cure by dilating the urethra to its natural ſize, without producing any effect injurious to the urinary canal, or ſeat of the ſtricture.

" As theſe metallic inſtruments are ſo durable as not to be affected by keeping any length of time, nor by the heat of any climate, I conceive they muſt be of infinite ſervice in the Eaſt and Weſt-Indies, where urethral obſtructions are very frequent, particularly among the natives. Indeed, their general uſe, in my opinion, cannot be too earneſtly recommended, as they effect with eaſe, in a few weeks, what has hitherto taken as many years to accompliſh."

§ 30. Dr. Pearſon's *Second and Laſt Examination.*

Mercurii, 14th Aprilis, 1802.

ADMIRAL BERKELEY IN THE CHAIR.

Dr. Pearſon was called in and examined, and ſtated, that Dr. Heberden authorized him to ſtate, on the authority of Dr. Lynd and Mr. Battiſcombe, of Windſor, that there is now living, near Windſor, a perſon, who, many years ago (the ſon of an apothecary), was inoculated by his father for the cow-pox.

" Did Dr. Heberden inform you whether this inoculation was performed from one human being to another, or from the virus taken immediately from the cow?"

" A. That is a queſtion I cannot anſwer."

" What farther facts do you know affecting Dr. Jenner's claim of being the promulgator or inventor of the vaccine inoculation?"

" A. I have admitted Dr. Jenner was the gentleman who firſt ſet on foot the inquiry into the advantages of the vaccine inoculation; but I apprehend that the practice of vaccine inoculation, which was firſt promulgated by Dr. Jenner, has been eſtabliſhed almoſt entirely by other practitioners; and that the new facts, or which I conſider to be new, have been, in my opinion, diſproved by ſubſequent obſervers; and that, in conſequence of thoſe facts being diſproved, together with the very extenſive experience of other perſons, we owe the preſent extenſive practice of the vaccine inoculation."

" Will you inform the Committee who thoſe practitioners and perſons are to whom you refer?"

" A. The cow-pox inoculation, after Dr. Jenner's book was publiſhed, in May or June 1798, which contained ſeven or eight caſes, the whole reſult of his experience, was not practiſed by any perſon that I know of till January 1799; neither Dr. Jenner, nor any perſon that I could find, being in poſſeſſion of matter. But in January 1799, in conſequence of a general inquiry, which I had inſtituted immediately after Dr. Jenner's publication, information was given of the cow-

pox diſeaſe breaking out in two of the cow-ſtables near London; and from theſe ſources Dr. Woodville and myſelf collected matter, by which, in the courſe of about three months, not fewer, I think, than 300 perſons were inoculated for the cow-pox, in addition to the ſeven or eight caſes of Dr. Jenner, then the whole ſtock of facts of inoculation before the public. Beſides carrying on the inoculation ourſelves in this manner, we diſſeminated the matter throughout the country, in particular to Dr. Jenner* himſelf; and particularly, alſo, I within that time iſſued a printed letter, directed to upwards of two hundred practitioners in different parts of the kingdom, containing thread impregnated with cow-pox matter. In the courſe of this practice we already learnt, *firſt*, that young infants might be inoculated with ſafety, which I conſidered to be then a new fact,† Dr. Jenner not having had the experience, and being apprehenſive of ſerious conſequences from inoculating them.

"*Secondly*, That the inoculated arms, ſo far from requiring cauſtic or eſcharotic, or other topical applications, were ſooner cured than in the inoculated ſmall-pox; that Dr. Woodville's publication in June 1799 appeared, containing the caſes of upwards of four hundred inoculated in that time; and in Auguſt 1799 I publiſhed a ſtatement of inoculation, referring to many practitioners who had furniſhed me with reports of inoculation, with matter which I myſelf had furniſhed: among theſe I beg leave to mention Mr. Kelſon, of Seven Oaks, Dr. Mitchel, of Chatham, and Dr. Harriſon's caſes, as communicated to me by Sir Joſeph Banks; and by that time I had alſo introduced it into the army, through the hands of the ſurgeon-general, Mr. Keate, and reports frequently came into my hands by his direction from the army. I had alſo, by that time, introduced the vaccine inoculation

* See Dr. Jenner's Letter in Dr. Pearſon's Inquiry, 1798, in which he ſays no matter can be had. Dr. Jenner, both in Letters to Dr. Woodville and Dr. Pearſon, owns this matter, ſent by them, excited the genuine cow-pock.

† This is alſo acknowledged in Dr. Jenner's Letter to the Evidence in February 1799.

into

into many parts of the Continent, and received reports of the ſucceſsful practice of it; in particular from Dr. de Carro, of Vienna. In addition to theſe teſtimonies contained in the paper above alluded to, is the reſult of my own practice in three pariſhes of poor people inoculated under my ſuperintendance; ſo that in that paper I believe it will be found that two thouſand caſes had by that time been afforded by Dr. Woodville and myſelf, and the perſons with whom I was in correſpondence, and who are mentioned in the papers alluded to: by this time, too, ſome difficulties appear to have been removed in a great meaſure by ſome facts ſtated to the public by Dr. Jenner, in particular, that I publiſhed,

" *Firſt,* Experiments of Inoculation in the paper alluded to, of inoculating perſons with the cow-pock who had undergone the ſmall-pox, to ſhew that they could not take the cow-pox after the ſmall-pox; alſo contrary to Dr. Jenner.

" *Secondly,* Experiments to ſhew that perſons could not take the cow-pox, both locally and conſtitutionally, who had already gone through the cow-pox; alſo contrary to Dr. Jenner.

" *Thirdly,* Many perſons had by this time made experiments to ſhew that the cow-pox did not originate in the greaſe of horſes' heels, as Dr. Jenner had aſſerted: theſe ſentiments will be found in a printed ſtatement, which I beg to deliver in, as publiſhed by me. In the ſpring of the year 1799, while the above-ſtated evidence was collected, a ſecond publication appeared from Dr. Jenner, adding nothing but a few caſes of inoculation farther of the cow-pox, but recommending cauſtic or eſcharotic applications to the inoculated parts in the cow-pox, not found neceſſary by the medical perſons alluded to in my evidence; and I conſider that the diſtinctive characters of the cow-pox were underſtood better by ſome of the above alluded to perſons than by Dr. Jenner. The vaccine inoculation was next conſiderably eſtabliſhed by the Cow-pox Inſtitution, of which I was one of the founders, commencing at the very cloſe of the year 1799; which inſtitution has been the principal office, I apprehend, for ſupplying the world in general, and the army and navy in particular,

ticular, with matter; and where a regular regiſter is kept of each of the caſes inoculated, more fully and accurately than had been done any where before or ſince that time; where the authenticity of the caſes, from the nature of the Inſtitution, is eſtabliſhed in a manner that, I apprehend, will be conſidered as unexceptionable. This appears from a regiſter of about ſeven hundred caſes already entered, and open to the inſpection of the ſubſcribers. By this time, namely, the cloſe of the year 1799, I think I can make it appear that about four thouſand perſons had been inoculated by Dr. Woodville, myſelf, and correſpondents, which can be referred to. I here cloſe my evidence, as I conſider it of very ſmall importance, comparatively with what was done by others at this time; all the facts that I can recollect of uſe in practice being by this time eſtabliſhed, as they have been ſince confirmed."

"Did you never hear of inoculation having been performed by Mr. Cline with matter furniſhed by Dr. Jenner, previous to the time you began to practiſe vaccine inoculation?"

"A. I cannot recollect diſtinctly."*

"Were not the ſeven or eight caſes of Dr. Jenner, alluded to by you, caſes of inoculation from one human being to another?"

"A. Some of them were, others were not."

"Had not many, or a large majority, of your firſt caſes variolous-like eruptions?"

"A. The matter, which had never been in the Small-pox Hoſpital, and which I myſelf took from the cows at the two cow-ſtables above alluded to, ſcarcely afforded any eruptions like the ſmall-pox; but when I obtained matter to ſupply my correſpondents in the country, not having enough of my own,

* The Evidence afterwards found there had been a ſingle caſe, but from which no matter was taken, nor was the caſe publiſhed till the following year.

but obtaining it from the Small-pox Hoſpital, it frequently, according to the reports of my correſpondents, and in a few caſes where I uſed it myſelf, did produce eruptions."

"Was not the matter or virus which you diſtributed found great fault with on account of the eruptions it produced?"

"A. No, it was not found fault with; but many people were diſappointed, as they expected that one of the advantages attending the inoculation was, to be exempt from eruptions."

"Did not theſe eruptions, which were produced by your matter, very much diſcourage practitioners and the public, and very much retard the progreſs of the new inoculation?"

"A. I ſhould think it did not."

"Do you not know there is a caſe in Dr. Jenner's firſt publication of his having inoculated a child of eleven years old?"

"A. I believe there is one caſe."

"Did not Dr. Woodville and yourſelf take the vaccine matter in Gray's Inn Lane for the purpoſe of commencing your experiments from a perſon fully marked with the ſmall-pox?"

"A. No ſuch caſe is in my recollection."

"Have thoſe facts ſtated by you to militate againſt Dr. Jenner's declared opinions remained uncontradicted by him? Does he ſtill maintain them, or has he publicly retracted them?"

"A. I think he has not retracted them." [Withdrew.]

Dr. Heberden's Evidence.

Dr. Heberden, being deſired to ſpeak to the ſtatement as above given by Dr. P., ſaid, "That all he knew upon the ſubject was, about three years ago, Dr. Lind, of Windſor, mentioned to him, in converſation, there was living near Windſor,

Windſor, a young man, apprentice to an apothecary, who, when a child, was inoculated with vaccine matter by his father, who was an apothecary in the Weſt of England. With reſpect to Mr. Battiſcombe he could not ſpeak, having heard nothing of it."

On this extract from the minutes of the Committee of the Houſe of Commons the following remarks have been publiſhed in a Medical Journal: " In his (Dr. Pearſon's) examination of the 14th (April), the authority of Dr. Heberden is made uſe of to prove what on that gentleman's examination *was found completely erroneous*, for he could not ſpeak to what Dr. *Pearſon aſſerted he could; and of Mr. Battiſcombe he had no knowledge.* On this it is unneceſſary to make any comment: the concluſion muſt be obvious."

Theſe aſſertions, made from the words of Dr. Heberden's evidence, muſt appear unwarrantable, on merely publiſhing this gentleman's explanation ſubjoined, which was obligingly communicated at the requeſt of Dr. Pearſon, who is conſcious that he had been ſufficiently correct in the ſtatement above given on the authority of Dr. Heberden.

" Dr. Heberden acquieſces in the correctneſs of his printed evidence, *with the addition of only two words*, viz. having heard nothing of it *from him*. In fact, Dr. Heberden was acquainted with Mr. Battiſcombe, but received his information reſpecting the vaccine inoculation from another quarter. Still it is true, that, when Dr. Heberden mentioned the circumſtance to Dr. Pearſon, upon Dr. Lind's authority, he corroborated his ſtatement, by adding, that Dr. Giſborne had been made acquainted with the ſame account through Mr. Battiſcombe; ſo that Dr. Heberden may, in effect, be ſaid to have related the circumſtance to Dr. P. *upon the united teſtimony of Dr. Lind and Mr. Battiſcombe;* though his information in the latter caſe not having been derived *immediately* from that gentleman, he could not, with propriety, produce to the Committee the authority of Mr. Battiſcombe for what he had heard upon the ſubject."

§ 31. *Spurious Kind of Meaſles.*

It would ſeem, from a number of caſes obſerved in the courſe of the laſt ſeaſon at New York, when the meaſles were very generally prevalent, that ſpurious forms of the diſeaſe, inſufficient to protect the ſyſtem from ſubſequent attacks of the true meaſles, occur in a manner very analogous to the ſpurious appearances of ſmall-pox and of the vaccine diſeaſe. Many perſons, who, on former occaſions of the meaſles prevailing, and after expoſure to the contagion, had exhibited certain irregular appearances of febrile, catarrhal, and eruptive ſymptoms, miſtaken for the true diſeaſe, have been attacked on the preſent occaſion with meaſles in an exquiſitely genuine form. (New York Med. Rep. vol. 5. No. 3.)

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§ 32. *Curious Facts concerning the Mode of Generation in the American Bear.*

The ſingular departure from the common courſe of nature in the procreation of the opoſſum and the ſhark is already known; but the manner in which the fœtus is matured by the female bear is not ſo generally underſtood. The following information was given to Mr. Franklin, Senator of the United States from North Carolina, by the hunters. This animal hybernates, and, during the winter, retires to hollow trees and caverns, but does not become torpid, or ſink into the ſleeping ſtate. Though found often in great numbers on the frontier ſettlements, and frequently killed and eaten by the inhabitants, there has never been an inſtance of a female killed in a pregnant condition, or big with young. The reaſon is, that, almoſt immediately after conception, the fœtus, while ſhapeleſs, and reſembling merely a ſmall animated lump, is excluded from the womb. Thus born, and expoſed to the open air, it has no connection with the teat like the opoſſum, nor with an egg like the ſhark. There is no trace of a placenta, nor umbilical veſſels. The growth of this rudiment of a future bear is ſuppoſed to be promoted by licking; and the ſaliva of the dam, or ſome other fluid from her mouth, appears to afford it nouriſhment.

In

In the courſe of time, and under ſuch management, the limbs and organs are evolved, the ſurface covered with hair, and the young cub at length rendered capable of attending its parent. Thus far the inquiries of the hunters have gone. The facts are ſo curious, that the ſubject is highly worthy of further inveſtigation; and when the entire hiſtory of the proceſs of generation in this animal ſhall be known, new light will be ſhed upon one of the moſt obſcure parts of phyſiology. It is to be hoped that gentlemen whoſe opportunities are favourable to the proſecution of this inquiry will furniſh the learned world ſhortly with the whole of theſe myſterious phenomena. [Ibid.]

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§ 33. *On the Cow-pock.*

The following extracts from a "Narrative of Facts concerning the Inoculation of the Kine-pock (*Anglicé*, cow-pock)," communicated to the editors of the Medical Repoſitory by Dr. Waterhouſe, of Cambridge, Maſſachuſetts, will be found intereſting, as they tend to explain and do away objections which have been ſtarted to the new practice, but which appear to be founded in miſconception and miſrepreſentation. The neceſſity of attending to the quality and time of taking of the matter, as well as to the real character of the diſeaſe, is very clearly evinced; ſince local, and even conſtitutional, ſymptoms following the inſertion of the virus, is not ſufficient, if the diſtinctive characters of the diſeaſe be wanting.

"The very numerous applications for the vaccine virus," Dr. *Waterhouſe* obſerves, "embarraſſed me not a little. Practitioners were not then apprized of the very ſmall quantity obtainable from a *ſingle puſtule*. I threw out a cautionary hint on this ſubject, and begged even my quondam pupils to protract their applications for *matter* until the practice was more firmly eſtabliſhed by experiment, and obſerved that ſome unſucceſsful caſes in the beginning deprived *Scotland* of the benefits of the ſmall-pox inoculation for more than twenty years. But the hint was miſconſtrued, and the miſchief I dreaded enſued.

"I had been particularly careful to warn my readers that there were ſome circumſtances, which, if not critically attended to, would bring the inoculation of this recently-imported diſtemper into a temporary diſrepute. I pointed out, from the writings of Dr. Jenner, the fallacious ſources whence a diſeaſe merely imitative of the genuine kine-pock might ariſe. I mentioned that *matter*, though originally poſſeſſing the ſpecific virus, but which had ſuffered a decompoſition either from putrefaction or ſome leſs obvious cauſe, would produce a SPURIOUS diſeaſe. I related that, when the puſtule, or inoculated part, had degenerated into an ulcer, that the matter taken from it, though it poſſeſſed the power of inflaming the arm, and of raiſing fever in the perſon to whom it was applied, was nevertheleſs *incapable of ſecuring the ſyſtem againſt the contagion of the ſmall-pox.*

"I felt it my duty, in *November* 1800, to acquaint the public, through the medium of the newſpaper, that the kine-pox had, in many places, degenerated from its original character, and that this deviation appeared to have ariſen from the inoculator taking his matter from the puſtule *at too late a period.* To give all weight to my cautions reſpecting *ſpurious* caſes, I added this extract from the celebrated Jenner to Dr. Pearſon: 'Much caution is therefore neceſſary in the progreſs of this inquiry; and this is my grand fear, that the diſcovery may fall into diſcredit from a want of that attention in conducting the experiments which the ſubject requires: for example, a perſon may conceive he has the cow-pox matter on his lancet, when, in fact, there may be only a little *putrid pus:* with this he inoculates, and excites a diſeaſe of ſome kind, *but not ſuch a one as will prevent the ſmall-pox.* Thus a deluſive inference would be drawn, at once hurtful to the cauſe, and particularly injurious to *me.* However, truth muſt appear at laſt.' And, leſt the reader's attention ſhould not, after all, be ſufficiently rouſed, I added, 'Inſtances of this kind are recorded to have happened in England, where the patients were afterwards inoculated for the ſmall-pox, and *took the diſorder.*'

"But

"But theſe repeated cautions were diſregarded by the young and ſanguine practitioner, who ſaw nothing but regular caſes, little trouble, and great profits. If thoſe whom it moſt concerns will not attend to what is written expreſsly for their information, they muſt alone be anſwerable for the conſequences. There are caſes where ignorance is converted into a crime.

"Perceiving that my reiterated warnings were miſconceived and miſrepreſented, and finding ſome profeſſional gentlemen in the country ſo wrapt up in ideas of extreme ſimplicity, that they encouraged women and children to inoculate each other, I ceaſed from further expreſſions of that kind, and endeavoured to content myſelf with predicting the conſequences of aiming to walk in a narrow and unfrequented path blindfold.

"During this period, viz. the autumn of 1800, a ſingular traffic was carried on in the article of *kine-pock matter*, by perſons not in the leaſt connected with the medical profeſſion, ſuch as ſtage-drivers, pedlars, and, in one inſtance, the ſexton of a church! I have known the ſhirt ſleeve of a patient ſtiff with the purulent diſcharge from a foul ulcer, made ſo by unſkilful management, and full three weeks after vaccination, and in which there could have been none of the ſpecific virus; I have known this cut up into ſmall ſtrips, and ſold about the country as genuine kine-pox, coming directly from me. Several hundred people were inoculated with this cauſtic animal poiſon, which produced great inflammation, ſickneſs, fever, and in ſeveral caſes *eruptions*, with a greater diſturbance of the ſyſtem in general than what occurs in the true diſeaſe. It is worthy of remark, that I could not influence theſe people to believe that they had not paſſed through the true diſeaſe, and that they were not ſecure from the ſmall-pox. So true it is, that a man need not deſpair of making the common people believe any thing *but* TRUTH! That vagrant quacks ſhould ſtroll about the country, inoculating for half a dollar a head, and ſome for leſs, is not quite ſo ſurprizing, as that they ſhould, in ſuch a country as our's, find people weak enough to receive

it from ſuch hands! This imprudence ought not, however, to be attributed to the common people alone. Many young practitioners come in for a ſhare of it. Not a few of them firſt inoculated themſelves, and then others, without having ever read more than the newſpaper publications, and ſome not even thoſe, and who were looking out for eruptions, and foretelling appearances and ſymptoms that are never attached to the diſeaſe; and if any very diſagreeable occurrence aroſe in the courſe of this imprudent practice, the odium reverted to me.

"At length a very ſerious occurrence took place, which arreſted, in ſome degree, this blind rage for promiſcuous inoculation; and as this incident is much oftener quoted than underſtood, I ſhall take ſome pains to explain it, eſpecially as it has ultimately turned out to the honour of the *Jennerian* diſcovery and practice.

"I had inoculated two inhabitants of *Marblehead*, a conſiderable ſea port about 16 miles from *Boſton*. The one was a young gentleman, Mr. F. a particular connection of Dr. S. The other was a boy of about ten years old, the ſon of Dr. D. Dr. S. had obtained ſome matter from the arm of a common ſailor, who came from London to Marblehead in a ſhip of which Dr. S.'s ſon was an officer. But this matter, which was *ſuppoſed* to have been the *cow or kine-pox virus*, was in fact the *variolous* matter; and Dr. S. began the uſe of it on his own children, which ſufficiently proves the parent was impoſed on. The conſequence was, the ſmall-pox ſpread through the neighbourhood, and the municipal authority gave leave for a general inoculation. Previouſly to this ſad accident, Dr. D. had inoculated about forty perſons from the arm of his ſon whom I had inoculated, but did not adhere to my directions reſpecting the *time* of taking the matter; and ALL *that he inoculated took the ſmall-pox either caſually, or by inoculation.* The conſequence was, as might have been foretold, a ſudden downfal to the credit of the new inoculation, and not a few execrations on the original promoter of it. Although I ſaw clearly the cauſe of this diſaſter (for I repaired immediately to Marblehead, and ſaw the

the chain of their calamity, and examined every link of it in conjunction with Dr. S. and Dr. D.), I found it vain to attempt to explain or palliate, but left its developement to time, that infallible teſt of truth. There was one thing, however, that attracted the attention of a few, namely, that the two perſons whom I inoculated eſcaped the ſmall-pox, although one was an aſſiſtant inoculator, and in ſome inſtances nurſe, during the whole time that the diſorder was paſſing through the town; and the other ſlept with his brother during the whole of the diſeaſe, which was pretty ſevere. When the popular voice condemned the kine-pox, theſe two facts pleaded ſtrongly in the minds of *a few* for an *arreſt of judgment*.*

" At

* *From the Boſton Chronicle.*

" Meſſrs Adams and Rhoades,

" Having noticed ſome caſes of the *ſuppoſed* kine-pox, publiſhed by Dr. Aſpinwall, I think it may conduce to public utility to give you my own caſe, which was very ſimilar to that given by the above inoculator.

" I was inoculated by Dr. Babbit, of Sturbridge, laſt December, with matter obtained from a practitioner in Connecticut. The matter had a purulent caſt, and was part of a ſhirt ſleeve worn during the plentiful diſcharge from the ulcerous ſtate of the puſtule. The inoculated arm appeared inflamed by the fourth day, and went on inflaming till about the eighth, when it became a running ſore. At this time I had *ſhiverings*, *pain in my head*, *back*, *and limbs*, with a *loſs of appetite*, and at times was very dull and ſleepy. The inoculated part became ulcerous, and diſcharged conſiderably, and at length terminated in an *irregular hard ſcab*.

" I had *eleven puſtules* on different parts of my arms, body, and face. From my ſymptoms I concluded I had paſſed through the true diſeaſe; but, as neither Dr. Babbit nor myſelf had ever ſeen the diſeaſe, we were at a loſs to determine reſpecting the appearance of the arm.

" While at Cambridge, attending the medical lectures, I conſulted Dr. Waterhouſe, who told me he very much doubted whether I had gone fairly through the *true* diſeaſe; and, to put it out of all doubt, would, if I wiſhed, inoculate me. He did ſo, and I ſoon ſaw an appearance very different from what took place in my former inoculation. The inflammation was not ſo ſevere, nor did it reſemble a boil ſo much as the former; nor did it terminate, like the former, in a hard, irregular, *yellow ſcab*, but reſembled, about the ſixth day, the ſeed of the common *running mallows*, or what the children call *cheeſes*, depreſſed in the middle. By the ſeventh day it preſerved the ſame appearance, but grew larger; the eighth day it appeared full of watery fluid. On the tenth day the efflorceſcence came on, and gradually increaſed till it extended half round the arm. The whole appearance was now *ſtrikingly different from my former caſe*. About this time, or rather previous, my ſymptoms commenced: beſides a ſlight ſwelling, and pain under my arm, I had the ordinary ſymptoms of fever, ſuch as a pain in my head, and tenderneſs in my eyes, which was increaſed by light. I had a tightneſs or ſtricture acroſs my breaſt, an univerſal affection, *peculiar*, *and very different*

" At this gloomy period of the buſineſs I wrote to my correſpondents in England for a freſh ſupply of vaccine virus, and gave out that the preſent ſeaſon was not ſo favourable for the inoculation as the ſpring.

" I gave Dr. Jenner a minute hiſtory of the whole buſineſs, and begged him to explain this *deterioration* of the virus; for I wiſh not to conceal my own perplexity at this period. That worthy man anſwered, that he had heard of our diſaſters, and would have given any thing could he have *hallooed* to me through a *ſpeaking-trumpet* acroſs the Atlantic only theſe words---'TAKE THE VIRUS BEFORE THE EFFLORESCENCE APPEARS.' He ſoon ſent me a freſh ſupply of matter, and a very lengthy and moſt lucid letter, which I cannot reſiſt giving to the public in a pamphlet I am now preparing for the preſs, becauſe it is a map of the road which the inoculator is to purſue, and which will for ever preſerve him from loſing his way.

" The *Maſſachuſetts Medical Society,* impreſſed with concern for the evil tendency of the many idle and falſe reports reſpecting the *ſpurious caſes* at Marblehead, appointed a committee, conſiſting of their *Preſident, Vice Preſident,* and myſelf, to inquire into facts on the ſpot, and make report. The communications made to that learned body from Marblehead were entirely to their ſatisfaction. Dr. Drury, of

different from what I ever before experienced. It appeared to be a ſpecific affection pervading the whole ſyſtem, and which I felt in every fibre. My feelings were, perhaps, more acute from having rid on horſe-back at night, and caught a ſevere cold. In my former inoculation my ſyſtem was oppreſſed with a train of irregular and rather ſtupifying ſymptoms, with a dull head-ache. In this, my laſt inoculation, my ſymptoms aroſe gradually with the efflorescence, then as gradually ſubſided, and by the thirteenth day left me as well as ever.

" After my firſt inoculation I had thoughts of trying the experiment of the ſmall-pox. Had I unluckily done it, I ſhould have added another ſpurious caſe, to perplex, confound, and diſcourage the inexperienced practitioner. During my inoculation Dr. Waterhouſe pointed out, from time to time, the difference in the appearances, as well as the ſymptoms, between the *genuine* and *ſpurious* caſes, or thoſe which will ſecure the human body ever after from the ſmall-pox, and ſuch as are no ſecurity at all. At preſent, I feel ſo confident that I have gone through the *genuine kine-pox*, that I have not the leaſt dread of expoſing myſelf to the natural ſmall-pox.

" CYRUS FAY.

" *Nov. 9th*, 1801."

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that town, wrote to me a very particular account of his inoculations from the matter taken from the arm of his ſon, and appeared to be thoroughly convinced that all his caſes were *ſpurious*. He concludes his candid narrative in theſe words:

"'On the whole, from what I have ſeen, it is my decided opinion that the inoculation for the kine-pox, if properly performed, *is a certain preventive of the ſmall-pox*. The principal thing to be attended to in this operation is, to take the matter at a proper time, which, in my opinion, as I have now learnt, is commonly on the eighth or ninth day, and in a limpid ſtate. The matter I uſed was in a *puriform* ſtate, and moſtly on thread.'

"In a letter from the Rev. Mr. Story, brother to Dr. S. dated the 7th of May, 1801, he ſays, 'It ever has been, and now is, my firm belief, that the kine-pox is a ſovereign antidote againſt the ſmall-pox. The only point to be determined is, whether the perſon has really paſſed through the *genuine* diſeaſe; for much ſpurious matter has been in uſe, which, though it may produce ſome eruptions, will be no ſecurity againſt the ſmall-pox, as was the caſe of the bulk of thoſe in this place. It appears that Dr. D. took matter for his inoculations on the thirteenth day. I view the kine-pox inoculation as a moſt important diſcovery, and, when better underſtood, will be carried on with ſafety and advantage to the public.'"

The following from Dr. *Spence*, of *Dumfries, Virginia*, to Dr. *Waterhouſe*, is to the ſame purpoſe.

"Soon after I commenced the new inoculation here, two ſpurious caſes occurred. A young gentleman of intelligence and diſcernment, but not bred to phyſic, who had read with great attention your letter to Mr. Jefferſon, and the few books I had on the kine-pox, inoculated three children of a poor family from the arm of a mulatto girl, *late on the ninth day of the diſeaſe*. One of theſe children, a boy about ten years of age, had the *true* diſeaſe, and on the eleventh day a ſmall puſtule appeared near the inoculated part. The other two children, his ſiſters, who were inoculated from

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the *ſame ſubject*, and at the *ſame inſtant*, had the diſeaſe evidently in a ſpurious form. The veſicular elevation appeared ſooner than what I had obſerved in any of my patients: it was *convex*; and on the ninth day there was on both their arms a rough, prominent, yellow cruſt, ſurrounded with a ſmall inflamed margin: no fever; no uneaſineſs in the axilla."—Theſe children were afterwards re-inoculated, and did well.

"Theſe caſes likewiſe gave riſe to a circumſtance too important to be omitted. The circuit or diſtrict court of Virginia, a court of the greateſt dignity in this State, except the high court of appeals, meets at this place twice a year, in the months of May and October. Laſt month, when the new inoculation was making ſome noiſe here, the Hon. Judge Prentis, whoſe place of reſidence is at Williamſburg, and who had all his children inoculated laſt ſpring with the ſpurious matter introduced into this State, and which did not reſiſt the ſmall-pox, ſpoke of the Jennerian diſcovery with a good deal of indignation. Hearing this, I took the earlieſt opportunity of letting him know how the Preſident had obtained the vaccine matter from you, and that its effects were widely different from any thing he had hitherto ſeen. Candid, and open to conviction, he viſited with me a number of patients of all colours in the various ſtages of the diſeaſe; and, on ſeeing their arms, at once declared the appearances were completely different from the inoculation on James-River. I then ſhewed him what I believed to be two ſpurious caſes; at which he was forcibly ſtruck, obſerving, that his children's arms had preciſely *ſuch a cruſt and ſuch an inflammation*. He told me, at the ſame time, that the matter with which his children were inoculated was *yellow*, and the ſcab of the ſame colour; and that he never diſcovered them to have any fever, ſoreneſs under the arm, or ſwelling in the axilla. Theſe caſes made ſuch an impreſſion upon him, that he deſired me to furniſh him with ſome freſh infected thread, with the neceſſary inſtructions for carrying on the new inoculation with certainty. For theſe inſtructions I was indebted to your letter to the Preſident. But, in order to illuſtrate the ſubject

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more fully to thoſe gentlemen who had been formerly inoculating in that part of Virginia, I quoted theſe few but impreſſive lines, in a letter I had the honour of receiving from you laſt ſummer: 'Pleaſe to preſent my compliments to Dr. H——, and tell him, if he inoculated with *yellow* matter, or by his inoculation produced *yellow* matter, I heſitate not to ſay, that it was not the true diſeaſe. Nay, further, if the virus did not lay dormant until the fifth, ſixth, or ſeventh day, it was ſpurious. If it occaſioned inflammation, and a *purulent* collection of matter by the third day, I want no further evidence of its being the *ſpurious* and not the *true* diſeaſe.'"

This gentleman mentions ſeveral caſes which appear to confirm the opinion of Dr. *Pearſon*, that thoſe who have undergone the ſpecific cow-pock puſtule and fever are afterwards unſuſceptible both of the ſmall-pox and cow-pox; and that thoſe who have undergone the ſmall-pox are alſo unſuſceptible of the cow-pock.

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§ 34. *Caſe of Vaccine Inoculation terminating fatally. Communicated by* Mr. Morriſon, *Surgeon, Bellville-place, Chelſea.*

'Since the ſanction of Parliament, the practice of vaccine inoculation becomes, of courſe, every day more extenſive. Being thus made more ſtrikingly an object of great national importance, it muſt involve conſequences ſo highly intereſting to ſociety, that it becomes more and more the duty of the medical obſerver impartially to lay before the public every new fact connected with the ſubject, whether favourable or otherwiſe.

'Every diſcovery that cannot be demonſtrated with mathematical certainty has three formidable opponents to combat; prejudice, intereſt, and paſſion. They are alike the ſlaves of error, and the enemies of truth; and though Truth is the ſole purſuit of the rational and impartial enquirer, they too frequently ſo contrive to diſguiſe, if not to conceal, her altogether,

gether, that it is very difficult to obtain a clear and diſtinct view of her. Of no ſcience, perhaps, more than that of medicine, may it with juſtice be remarked, that one line of experience outweighs a volume of opinion. An immenſity of other facts muſt yet be added before the real value of the vaccine diſcovery can be duly appreciated; and while profeſſional men ſhould, on the one hand, be careful to avoid being ſo bigottedly fond of old practices and opinions as thereby to be led to oppoſe any diſcovery that promiſes the leaſt advantage to mankind and to their art, they ought with equal care, on the other, not to ſuffer themſelves to be ſo blinded with the preſent apparent advantages attending any new practice, as to either conceal or diſguiſe facts which make againſt that practice.

'Impreſſed with theſe ſentiments, the following caſes are laid before the public.

'About two years ſince, I received a note from Dr. Pearſon, of Leiceſter Square, requeſting to know what had occurred in my practice of vaccine inoculation; in anſwer to which, after ſaying, that, as a preventive of ſmall-pox, as far as my individual practice then extended, it had fully anſwered my wiſhes, I ſtated, that, in a few inſtances, I had experienced ſome trouble from a raſh, ſtrictly agreeing with the deſcription of urticaria, which appeared eight or ten days after inoculation; and I mentioned two caſes where it had occurred more particularly violent, in one of which (a child of Mr. Roberts, morocco leather manufacturer, Batterſea) the itching attending the eruption was to that intolerable degree, that the patient hardly reſted night or day for a fortnight.—The other patient (a child of Mr. Malleſon, Proſpect Place, Chelſea) was ſimilarly affected, although not for ſo long a time. In neither of theſe caſes, however, nor in any other I had then met with, did any appearances occur of an alarming or dangerous nature. The following, I am ſorry to ſay, is of a very different deſcription; and, as the appearance of any eruption of the above kind has not been deſcribed as ever attending the progreſs of the vaccine diſeaſe by any perſon who has written upon the ſubject, as far as my obſervation

vation has extended, I ſhall be more particular in my account of the caſe.*

'On Tueſday, 12th Oct. 1802, I inoculated two children, daughters of Mr. New, Don Saltero's Coffee Houſe Chelſea, (one of them near five, the other two years and three months old, and both in perfect health) with vaccine matter, taken from a healthy ſubject, and the diſeaſe peculiarly favourable. The infection took place, and appearances went on in the uſual way with both till the 19th, and with the youngeſt continued ſo to do through the whole progreſs of the diſeaſe.

'Wedneſday the 20th, I was informed that the eldeſt had paſſed a very reſtleſs night, and had complained much of pricking pains under the ſkin, all over her body. She had now conſiderable febrile heat, dry ſkin, and quick pulſe.

'Thurſday the 21ſt. The febrile ſymptoms had increaſed, and, in addition, the raſh above deſcribed appeared over the body, attended with great irritation and reſtleſſneſs. She complained alſo of particular pain in the left leg, which, upon examination, was perceived to be ſwelled, and tenſe round the ancle and upon the foot. A ſaline medicine was ordered with ſome antim. tartar.

'Friday the 22d. She had again paſſed a very reſtleſs night, and all the ſymptoms continued to grow worſe. The raſh was out very much over the whole body, and the ſwelling of the leg had extended itſelf to the calf, which was very hard and tenſe. On the outſide, the leg was more inflamed than on the inſide, and this increaſed inflammation ſeemed connected with one of the vibices of the raſh, which formed its centre. She had experienced no diaphoreſis; the bowels were open; the arm ſhewed no unuſual appearance either now or during the courſe of the diſeaſe, except being more dry than common, containing from the firſt of its veſication very little lymph. Internally, the ſame plan was purſued as yeſterday; externally, an emollient poultice was ordered to be applied, and changed every ſix hours, and the legs and

'*I ſtrongly ſuſpect that two caſes related by Mr. Maddock, Surgeon, of Nottingham, in the Medical and Chirurgical Review for March, 1800, were of the above kind, though the particular appearances of the inflammatory eruption are differently deſcribed.

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feet to be fomented for half an hour at every time of changing with warm vinegar and water.

'Saturday the 23d. The pain from the leg had been ſo great, and the fever ſo much increaſed, that ſhe was delirious in the night; pulſe very frequent; tongue much parched; ſkin very hot and dry. The inflammation and ſwelling of the leg had extended to the knee. An anodyne fotus was ordered at the changes of the poultice, and a bliſter applied between the ſhoulders.

'Sunday the 24th. The inflammation and ſwelling of the leg had ſpread above the knee. The other ſymptoms were not materially different from yeſterday, only that the inflamed margins of the vibices aſſumed a deeper hue.

'Monday the 25th. Dr. Moſeley was called in. The fever, reſtleſſneſs, and delirium, had increaſed ſince yeſterday; the leg was enlarged prodigiouſly, and hard, hot, and tenſe, the child continually ſcreaming from the violence of the pain: her pulſe was ſo quick and irregular as not to be counted with preciſion; her whole body and extremities covered with the raſh, which now put on more of an eryſipelatous appearance, though ſtill the vibices reſembling urticaria were here and there diſtinctly diſcernible. Dr. Moſeley ordered four grains of calomel; afterwards a ſaline febrifuge mixture. The external applications were continued.

'Tueſday the 26th. The calomel operated three times, and for a while appeaſed the reſtleſſneſs; the febrile ſymptoms and raſh were much the ſame as yeſterday. In the ſtate and ſwelling of the limb there was no alteration that gave us hopes; the pain was intolerable, and we perceived one of her hands enlarged, and the fingers tumid; the treatment and regimen were continued nearly the ſame as yeſterday.

'Wedneſday the 27th. The excruciating pain in the leg and thigh as great as ever, but the ſwelling and induration leſſened, without any appearance of ſuppuration. The ſwelling ſtill, however, remained prominent, and ſomewhat diſcoloured about the ancle; the countenance pallid; the pulſe not to be numbered; the raſh of a darker hue; the tongue harſh and brown: the cortex and vitriolic acid were ordered, with ſuitable regimen.

'Thurſday

'Thurſday the 28th. The child had changed conſiderably for the worſe in the night; the raſh diſappeared almoſt entirely; the ſwelling in the leg and thigh much diminiſhed, and ſofter; both hands were now ſwelled, and ſtiff; oppreſſed reſpiration; pulſe intermitting; yet the agony of the pain not in the leaſt abated, and the child's expreſſion of her ſufferings in this dying ſtate was beyond all deſcription: ſhe lived till twelve o'clock in the night.'

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§ 35. *Directions for the Practice of the Vaccine Inoculation.*

The following conciſe inſtructions for practiſing the new inoculation have been printed and circulated by the *Vaccine Inſtitution.* As they contain every material point relating to the practice, and cannot fail to be uſeful to thoſe who have yet had little experience in it, we have thought it worth while to tranſcribe them here.

" 1. The vaccine pock matter being generally, when firſt taken from the veſicle, a thin limpid fluid, it becomes, when dried, ſcarcely viſible, either on *glaſs* or the end of a *lancet*, even on a quite new one. If the matter be taken on thread, it will be perceived by the ſtiffneſs of it when dried.

" 2. If the matter is not uſed immediately on its being taken from the vaccine pock, it will of courſe be dry; and when employed, it ſhould be ſoftened by the ſmalleſt particle of hot water; and, to avoid too great a dilution, that ſhould be done by a particle of hot water hanging on the extremity of a needle.

" 3. The inoculation muſt be performed in the ſame manner as for the ſmall-pox; but it may be uſeful to recommend, that,

" 4. Matter be inſerted in one place only in each arm, by a very ſmall ſcratch or puncture of the ſkin.

" 5. One armed lancet ſhould be uſed for only one or at moſt two punctures.

" 6. If the infection take, there will be ſeen in the inoculated part, in four days or leſs, a red ſpot, like a ſmall gnat

bite. In ſix days there will be generally a very ſmall veſicle. In nine days a circular veſicle appears, as large as a pea, often ſurrounded by a ſmall red areola. In twelve days the red areola will generally ſurround the veſicle, which then begins to dry, and turn black in the middle.

" Between the eighth and eleventh day a ſlight fever often takes place.

" By the fourteenth day the veſicle is uſually changed into a circular dark brown ſcab, which ſhould by no means be removed, but left to fall off, which it will do in two or three weeks, leaving a pit.

" If in four days the gnat-bite appearance be not manifeſt, the inoculation ſhould be repeated.

" 7. For inoculation, matter may be taken between the ſeventh and thirteenth days, generally; but probably it is moſt efficacious, and is in greateſt quantity, on the ninth and tenth days.

" 8. A conſiderable redneſs, like eryſipelas, ſometimes comes on, and ſpreads over the arm, about the eleventh or twelfth day, which goes off of itſelf commonly in a day or two; but cooling applications will often be of ſervice, and never do harm. An emollient poultice ſhould not be applied, except in particular caſes of phlegmonous inflammation.

" 9. The medical treatment is the ſame as that of the inoculated ſmall-pox.

" 11. As the vaccine inoculation produces ſometimes a local affection only, without any perceivable diſorder of the conſtitution, it will be ſafeſt, in doubtful caſes, to re-inoculate the ſubject; and if no local diſeaſe be produced, or only an imperfect veſicle of a few days' duration, ſufficient ſecurity will have been obtained by the firſt inoculation.

" *Note.*—It has been thought proper to require half a guinea for arming three lancets, or one guinea annually for ſupplying each practitioner with matter, for his own uſe *only*, as often as wanted; the expences of poſtage and porterage being diſcharged by thoſe who apply.

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§ 36. *Yaws cured by the Inoculated Small-pox, and probably, therefore, by the Cow-pock.*

Dr. Nembhard ſays, as cited by Dr. Dancer in his work called 'The Medical Aſſiſtant,' 4to, 1801, p. 224, that during the univerſal prevalence of the ſmall-pox in this iſland (Jamaica), in the year 1784, it was remarked that ſeveral negroes afflicted with the yaws, who had the yaws puſtules upon the ſurface of the body, and had been a conſiderable time under all the afflicting circumſtances of the diſeaſe, were inoculated promiſcuouſly among many other negroes. The reſult was, that upon the decline of the ſmall-pox, and drying away of the puſtules, the yaws alſo gradually diſappeared, as if both might be conſidered in the light of one contagious diſeaſe. The negroes were radically cured of both diſeaſes, not one of them having been, from that time to this, ſubject to a return of either, ſo far as I can learn, or any relics of the yaws. Dr. Dancer obſerves, the advantages of this fact are obvious to planters and the faculty, as, if it be fully aſcertained, it would *be a diſcovery little ſhort of that of preventing the ſmall-pox by the cow-pox.*

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§ 37.

The following communications, extracted from the New York Med. Rep. (vol. 5, No. 4), it muſt be confeſſed, have an appearance of the marvellous about them; yet the channel through which they come is too reſpectable to allow us to queſtion their authenticity.

"*Spontaneous Decompoſition of a Fabric of Silk.*

"On the night of March 9th, 1802, during the ſeſſion of Congreſs at Waſhington, Jonathan Dayton, one of the ſenators, then attending from the State of New Jerſey, ſuſtained the loſs of a pair of black ſilk ſtockings in an uncommon manner. On undreſſing himſelf at bed-time, his ſtockings were the laſt of his garments which he took off. The weather being cold, he wore two pair, the inner of wool, and the outer of ſilk. When he ſtripped off the ſilk ſtockings, he

let them drop on a woollen carpet laying by the bed-ſide; and one of his garters, which was of white woollen ferretin, fell down with the ſtockings. The under ſtockings, on being pulled off, were thrown at ſome diſtance, near the foot of the bed. He obſerved, on ſeparating and removing the ſilk ſtockings from the woollen ones, that there was an unuſual ſnapping and ſparkling of electric matter; but, as he had been long acquainted with the appearance, it attracted but tranſient notice.

"He fell aſleep, and remained undiſturbed until morning, when the ſervant entered to kindle the fire. The man obſerved that one of the leather ſlippers, lying on the carpet, and partly covered by one of the ſtockings, was very much burnt. Mr. Dayton then roſe, and found that the leather over which the ſtockings had lain was converted to a coal. The ſtockings were changed to brown, or what is commonly called a butternut colour. And although to the eye the ſtitches of the legs, and even the threads of their clocks, appeared to be firm and entire, yet, as ſoon as an attempt was made to touch and handle them, they were found to be wholly deſtitute of coheſion, their texture and ſtructure being altogether deſtroyed. Nothing but a remnant of carbonic matter was left, except that a part of the heel of one of the ſtockings was not decompoſed.

"Though this deſtruction of the ſtockings took place during the night, when nobody ſaw the manner and circumſtances of the proceſs, yet there was evidence enough of the evolution of much caloric while it was going on; for every thing in contact with the ſtockings was turned to coal or cinder. Beſide the ſlipper before mentioned, the garter was burned. It had fallen partly on the carpet, and partly on and between the ſtockings. As far as it touched the ſtockings, it was perfectly diſorganized and carbonated, and immediately beyond that limit was as ſound as ever. The part of the carpet, with its fringe, which lay between the ſtockings and the floor, was in like manner totally deſtroyed, juſt as far as it was covered by the ſtockings, and no farther. The wooden

wooden plank, which was of pitch-pine, was alſo conſiderably ſcorched; and beneath the place where the thickeſt folds of the ſtockings had lain, was converted to charcoal or lamp black to a conſiderable depth. In throwing down the ſtockings when they were pulled off, it happened that about a third part of the length of one of them fell not upon the carpet, but upon the bare floor. This part of the ſtocking was decompoſed like the reſt, and the floor very much ſcorched where it had lain.

"There was very little fire on the hearth, and the little there was, was eight or nine feet diſtant. The candle had been carefully extinguiſhed, and ſtood on a table in another direction, and about equally diſtant. Indeed, no application of burning coals or of lighted candles could have produced the effects which have been deſcribed. It would ſeem that the combuſtion, if it may be ſo called, proceeded from a ſurcharge of anticrouon (caloric), or electron (electricity), in the ſilk, accumulated by means not well underſtood; and that, not being referable to any known external agent, it may, in the preſent ſtate of our information, be termed ſpontaneous.

"The ſubſtances chiefly conſumed were leather, wool, ſilk, and reſinous wood. The linen lining of the ſlipper was indeed deſtroyed as far as the leather it touched was deſtroyed. But where it did not come in contact it eſcaped, and the fire ſhewed no diſpoſition to burn even the linen beyond the boundaries preſcribed to it on the leather.

"What is the theory of this phenomenon? With what other facts is it immediately connected? Whatever men of ſcience may determine on theſe points, one thing ſeems to be evident,---that, if ſpontaneous combuſtion can happen thus to bodies ſo little inflammable as leather, ſilk, and wool, that inſtances of its occurrence in bodies eaſier to burn are more frequent than is generally ſuppoſed."

"*Rapid Diſorganization of the Human Body.*

"A letter to Gen. William Shepherd contained information, that on the night of the 16th day of March, 1802, in one

one of the towns of the State of Maſſachuſetts, the body of an elderly woman evaporated and diſappeared, from ſome internal and unknown cauſe, in the duration of about one hour and a half. Part of the family had gone to bed, and the reſt were abroad. The old woman remained awake to take care of the houſe. By and by one of the grand-children came home, and diſcovered the floor near the hearth to be on fire. An alarm was made, a light brought, and means taken to extinguiſh it. While theſe things were doing, ſome ſingular appearances were obſerved on the hearth and the contiguous floor. There was a ſort of greaſy ſoot and aſhes, with remains of a human body, and an unuſual ſmell in the room. All the cloaths were conſumed, and the grandmother was miſſing. It was at firſt ſuppoſed ſhe had, in attempting to light her pipe of tobacco, fallen into the fire, and been burned to death; but on conſidering how ſmall the fire was, and that ſo total a conſumption could ſcarcely have happened if there had been ten times as much, there is more reaſon to conclude that this is another caſe of that ſpontaneous decompoſition of the human body, of which there are ſeveral inſtances on record. It is to be regretted the particulars have not been more carefully noted."

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§ 38. *The Action of the Spleen inveſtigated by the Effects following its Extirpation.*

M. M. *Le Clerc* and *Dupuytren*, Members of *l'Ecole de Medecine*, of Paris, obſerved, in a dog, whoſe ſpleen had been extirpated, the bile to be ſeparated more rapidly than uſual, with a copious vomiting of liquid matters. Another dog, ſubjected to the ſame operation, and who ſurvived it for the ſpace of fifty days, ſecreted little bile; but the liver was found exceedingly enlarged, and its weight, compared with that of the whole body, was as 1 to $14\frac{1}{4}$; whilſt in the ſame animal in health, the proportion is as 1 to $29\frac{3}{4}$.

Notice

Notice of Lectures.

ON Monday, January the 17th, at ſeven o'clock in the evening, the Spring Courſe of Lectures on the Principles and Practice of Surgery will commence, by JOHN PEARSON, Senior Surgeon of the Lock Hoſpital and Aſylum, and of the Public Diſpenſary.

Mr. HEADINGTON and Mr. FRAMPTON will commence their Second Courſe of Lectures on Anatomy, Phyſiology, and the Principles and Operations of Surgery, on Thurſday, the 20th of January, 1803, at nine o'clock in the morning.

Anatomical Demonſtrations and Diſſections by Mr. Armiger.

During the Winter, a Courſe of Lectures on Surgery, illuſtrated by caſes received into the Hoſpital, will be delivered by Mr. Blizard, Mr. Thomas Blizard, and Mr. Headington.

Mr. MACARTNEY will commence his Lectures upon Comparative Anatomy and Phyſiology, at the Medical Theatre, St. Bartholomew's Hoſpital, on Monday, the 31ſt of January, 1803, at eight o'clock in the evening. He intends alſo to include the Structure of Vegetables, as being illuſtrative of the laws of organic exiſtence.

For particulars, apply to Mr. Nicholſon, at the Apothecary's Shop, St. Bartholomew's Hoſpital.

Mr. CHEVALIER, Surgeon of the Weſtminſter General Diſpenſary, will begin his next Courſe of Lectures on the Principles and Operations of Surgery, on Monday, the 31ſt of January, 1803, at ſeven o'clock in the evening, at his houſe in South Audley Street, Groſvenor Square, where printed particulars may be had.

Corre-

Correſpondence.

To the EDITORS *of the Medical and Chirurgical Review.*

—— " THE perforation of the *Membrana Tympani,* lately propoſed and performed for the cure of certain ſpecies of Deafneſs, by Mr. Cooper, appears to have been attended with *preſent* relief. I wiſh to aſk, have the good effects in thoſe caſes *continued?* I put this queſtion, becauſe an author of no mean eſtimation, *Willis,* in his Treatiſe *De Anima Brutorum,* cap. 14, obſerves, that though the hearing be not at firſt deſtroyed by this operation, yet that, after a ſhort time, a few months, for example, it is gradually loſt. This he found to be the caſe in a dog, in whom the Membrana Tympani in each ear was perforated. The paſſage to which I allude is as follows: *Si Tympani Membrana deſtruatur, ſenſionem adhuc aliquam diu, rudi licet modo, peragi poſſe: quippe experimento olim in cane facto conſtitiſſe, quod perforato utriuſque auris tympano, auditio adhuc ad tempus perſtaret, quæ tamen poſt tres circiter menſes penitus ceſſabat.*

" It is of no ſmall importance to practitioners and to the public to be informed, whether any thing like the above has occurred in the inſtances in which the Membrana Tympani has been perforated in the human ſubject; in order to prevent the unneceſſary performance of an extremely painful, if not a dangerous operation." Ἰατὴς.

No. LIII.

THE MEDICAL AND CHIRURGICAL Review.

MARCH, 1803.

ART. LX. *Philoſophical Tranſactions of the Royal Society of London for the Year* 1802. Part II, 4to, 320 pages. London, 1802. NICOL.

OF the papers contained in the preſent part of the Tranſactions there are only one or two which call for our particular notice: the titles of the remainder will be given in courſe.

The firſt paper *(art.* 8*)* contains "Obſervations on the two lately diſcovered celeſtial Bodies. By Dr. *Herſchell.*"—To theſe the learned author gives the name of *aſteroids*, as not aſſimilating in their nature perfectly with either the fixed ſtars or the planets.

Art. 9. "Deſcription of the Corundum Stone, and its Varieties, commonly known by the Names of Oriental Ruby, Sapphire, &c.; with Obſervations on ſome other mineral Subſtances. By the *Count de Bournon.*"

Art. 10. "Analyſis of Corundum, and of ſome of the Subſtances which accompany it; with Obſervations on the Affinities which the Earths have been ſuppoſed to have for each other in the humid Way.

By *Richard Chenevix*, Eſq."—The Corundum ſtone, brought from the Eaſt Indies, is a precious ſtone in hardneſs approaching to the diamond, and conſiſting chiefly of argil or alumine. It is of various colours, and, when perfect, gives name to ſeveral of the moſt eſteemed oriental gems. The chief colours it aſſumes are, red, blue, and yellow. The red colour conſtitutes the ſtone known by the name of the oriental ruby. The blue colour is always that which is known by the name of azure; and the ſtone which poſſeſſes this colour is diſtinguiſhed by the name of ſapphire. The yellow colour is ſeldom pure, being, in general, more or leſs mixed with a reddiſh tint. The gem of this colour is called the oriental topaz. From a duly proportioned mixture of the blue and the red is produced the purple colour which conſtitutes the oriental amethyſt. By the union of the blue colour with the yellow is formed the green, which produces the oriental emerald. Sometimes the yellow colour predominates, and then the ſtone becomes the oriental chryſolite. Theſe colours ſometimes exiſt in a ſeparate ſtate, and very diſtinct, in the ſame ſtone.

From the very minute and accurate analyſis of this ſtone by Mr. Chenevix, it appears that all the different kinds of corundum are nearly ſimilar in their conſtituent parts, differing a little in the relative proportions. The chief ingredient in the compoſition, as before obſerved, is alumina, which varies in its proportions, in different varieties of the ſtone, from 86 to 92 parts in the hundred. The other components are ſilica, from 5 to 7 per cent.; and iron, from 1 to 6 per cent.

With reſpect to the affinities the different earths have been ſuppoſed to have for each other in the humid way, Mr. Chenevix calls in queſtion the experiments made by M. Guyton on the ſubject. The experiments of Mr. Chenevix lead him to conclude, 1. That there really exiſts an affinity between ſilica and alumina. 2. That there exiſts alſo a very powerful affinity

affinity between alumina and magneſia. 3. That alumina ſhews an affinity for lime; but not ſo ſtrong an one as M. Guyton had ſuppoſed, nor, if pure re-agents be uſed, is it to be perceived under the circumſtances ſtated by him. 4. That M. Guyton was miſtaken in every inſtance of affinity between the earths, excepting in the caſe of ſilex with alumina, which had been obſerved before his experiments; and that, in the other caſes, he has attributed to a cauſe which does not exiſt phenomena that muſt have reſulted from the impurity of his re-agents.

Art. 11. "Deſcription of the Anatomy of the *Ornithorhynchus Hyſtrix.* By *Everard Home*, Eſq."—The moſt ſtriking peculiarities of the ornythorhynchus paradoxus, as obſerved by Mr. Home, and which belongs to the ſame genus with the animal here deſcribed, were noticed in a former number of our Review.* The ornithorhynchus hyſtrix, ſo called from its reſemblance, by its quills, to the porcupine, to which in its general figure it bears a remote likeneſs, is an inhabitant of New South Wales. In length it is about ſeventeen inches, and its greateſt circumference nearly the ſame.

The peculiar characters of this genus, or rather tribe, of animals are thus given by Mr. Home:—

The male having a ſpur on the two hind legs, cloſe to the heel:

The female having no nipples:

The beak being ſmooth, while the reſt of the animal is covered with hair:

The tongue having horny proceſſes anſwering the purpoſes of teeth:

The penis of the male being appropriated to the paſſage of the ſemen; and its external orifice being ſubdivided into ſeveral openings, ſo as to ſcatter the

* See page 112 of the preſent volume.

ſemen over an extent of ſurface, while the urine paſſes by a ſeparate canal into the rectum:

The female having no common uterus; and the tubes which correſpond to the horns of the uterus in other quadrupeds receiving the ſemen immediately from the penis of the male.

Theſe characters, Mr. H. obſerves, diſtinguiſh the ornithorhynchus, in a very remarkable manner, from all other quadrupeds, giving this new tribe a reſemblance in ſome reſpects to birds, in others to the amphibia; ſo that it may be conſidered as an intermediate link between the claſſes mammalia, aves, and amphibia; and, although the great difference that exiſts between it and the myrmecophaga, the neareſt genus we are at preſent acquainted with, ſhews that the nicer gradations towards the more perfect quadrupeds are not at preſent known, the facts which have been ſtated may induce others to proſecute the inquiry, and render that part of the chain more complete.

Between it and the bird no link of importance ſeems to be wanting.

Art. 12. "A Method of examining refractive and diſperſive Powers by priſmatic Reflection. By *W. H. Wollaſton*, M.D., &c."

Art. 13. "On the oblique Refraction of Iceland Cryſtal. *By the ſame.*"

Art. 14. "An Account of ſome Caſes of the Production of Colours not hitherto deſcribed."—Theſe articles all belong to the more abſtruſe part of optics, and could ſcarcely be rendered intelligible in an abridged ſtate. We ſhall only remark, that Dr. Wollaſton's obſervations with the priſm lead him to believe that the colours into which a beam of white light is ſeparable by refraction are neither ſeven, as they are uſually ſeen in the rainbow, nor reducible to three, as ſome perſons have conceived; but that, by employing a very narrow pencil of light, as by admitting a beam of daylight into a dark room by a crevice $\frac{1}{20}$ of an inch broad,

broad, and received by the eye at the diſtance of ten or twelve feet through a priſm of flint glaſs, free from veins, held near the eye, *four* primary diviſions of the priſmatic ſpectrum may be ſeen, viz. red, yellowiſh-green, blue, and violet.

Art. 15. "On the Compoſition of Emery. By *Smithſon Tennant*, Eſq., F.R.S."—The ſubſtance called emery, which, from its great hardneſs, has been long uſed in various manufactures for grinding and poliſhing other bodies, has not, it appears, been hitherto correctly analyzed. In books of mineralogy it is conſidered as an ore of iron; an opinion probably derived, Mr. T. remarks, from its great ſpecific gravity, as well as from the iron which it frequently contains. But, where this metal is moſt abundant, it could not be extracted from the emery with advantage, and ought rather to be regarded as an impurity, as it does not contribute to produce the peculiar hardneſs for which this ſtone is diſtinguiſhed.

The experiments of Mr. Tennant, here detailed, prove inconteſtibly that its chief component ingredient is argillaceous earth, reſembling very nearly, in this reſpect, what is called the diamond ſpar. One hundred parts of emery reduced to powder, and freed from iron, as far as poſſible, by the magnet, gave on analyſis the proportions ſtated below. The quantity of iron in different ſpecimens appears to vary from 4 to 30 per cent. of this metal.

Argillaceous earth - - -	80
Silex - - - - - - - - -	3
Iron - - - - - - - - -	4
Undiſſolved - - : - - -	3
Loſs - - - - - - - - -	10
	100

All the emery uſed in England is ſaid to be brought from the iſlands of the Archipelago, and principally

from Naxos; in which places it is probably very abundant, as it ſells in London at eight or ten ſhillings the hundred weight.

Art. 16. "Quelques Remarques ſur la Chaleur, et ſur l'Action des Corps qui l'intercept. Par *P. Prevoſt*, Profeſſeur de Philoſophie à Geneve."—We formerly noticed at conſiderable length* the very intereſting experiments of Dr. Herſchell with reſpect to the quantity of heat tranſmitted by different tranſparent bodies; as flint glaſs, coloured glaſs, talc, &c. in compariſon with that excited by the heating power where no obſtacle was interpoſed between it and the bulb of the thermometer. Theſe experiments M. Prevoſt, in the paper before us, has examined with much minuteneſs; and he concludes his inquiry by obſerving, that the reſult which Dr. Herſchell had in view, viz. the aſcertaining the interceptive power of bodies, is not ſo ſimple as might be at firſt ſuppoſed, and, in fact, that the ſubject requires to be inveſtigated anew.

When a plate of glaſs, or other ſubſtance, is interpoſed between the thermometer and the heating body, the inſtrument receives heat in two ways; by tranſmiſſion, and by radiation. At the firſt inſtant of the experiment the tranſmitted heat acts on the thermometer; but the heat tranſmitted is probably but a ſmall part of that which reaches the intercepting body. Another part is abſorbed by the plate, and, accumulating after a time, emits calorific rays, which alſo act on the thermometer, and this increaſes as the heat of the intercepting plate becomes augmented. Here, then, is a ſource of fallacy in endeavouring to eſtimate the actual quantity of tranſmitted heat. The effect is a compound one, proceeding from two widely different ſources. M. Prevoſt thinks, however, that the power of each may be ſeparately aſcertained by

* See Med. and Chir. Rev., vol. viii, p. 1, et ſeq.

obſerving

obſerving the inſtantaneous effect of the heat tranſmitted through any body, and not its effect after a length of time. The reſult of Dr. Herſchell's experiments he ſuppoſes alſo may have been varied by the different thickneſs of the interpoſed plate, and by ſome inequality in the intenſity of the heated body employed.

Towards the cloſe of his paper M. Prevoſt gives his own theory of the nature of heat, and a hiſtory of the facts and opinions which led him to adopt it. As we have no doubt it will prove intereſting to our readers, we ſhall follow him in this part of his ſubject at ſome length.

'Bacon,' M. Prevoſt obſerves, 'propoſed the following queſtion as a ſubject for experiment: "Luminous and radiant heat is augmented on being "concentrated by means of glaſſes: is inviſible, or "opaque, heat (ſuch as that of ſtones and metals, be"fore arriving at a red heat) ſubject to the ſame im"preſſion?"*

'Several philoſophers after Bacon obſerved, that a live coal placed between two concave mirrors ſet fire to a combuſtible body at more than twenty feet diſtance. Lambert attributed this effect to the inviſible heat, and not to that which is luminous. He was led to this ſuppoſition from obſerving that a very briſk fire did not appear to give any heat to the focus of a convex lens.†

'M. de Sauſſure reſolved to verify this idea of Lambert's by ſubſtituting an iron bullet heated, but not to a red heat, in place of the coal. He addreſſed himſelf to M. Pictet to make the experiment, and this gentleman ſucceeded perfectly. The bullet, placed in the focus of one of the mirrors, cauſed a thermometer in the focus of the other to riſe $10\frac{1}{2}$ degrees. A matraſs of boiling water, ſubſtituted by M. Pictet for the bullet, produced the ſame effect, though with leſs intenſity.‡

* Inſtaurat., l. 5, c. 2. † Pyrometrie, § 378. ‡ Voya g aux Alpes, § 926.

'Theſe experiments proved inconteſtibly that heat was ſuſceptible of being reflected according to the ſame law as light. M. Pictet proved beſides, that the velocity in this caſe is ſo great, that it paſſes through a ſpace of ſixty-nine feet in an inſtant of time quite immeaſurable.*

'Theſe facts, however curious and important, do not neceſſarily compel the philoſopher to decide on the nature of the agent that produces the heat; nor, eſpecially, on the mode by which the equilibrium of temperature between two bodies, or between two adjoining ſpaces, is eſtabliſhed and preſerved. The term *tenſion*, or ſome other equivalent word, was employed to expreſs the ſpecies of effort by which it operated. Thus, when two ſpaces are unequally heated, it was ſaid that the ſuperior tenſion of the hotter one, overpowering that of the other, brings about, at laſt, a ſtate in which the two tenſions are equal, and balance each other; and although this language preſents only an indeterminate conception to the mind, it was thought neceſſary to reſt ſatisfied with it, and to receive it as a law of nature. This law was, moreover, ſimilar to that which the groſſer elaſtic fluids were obſerved to obey when they ſuffered compreſſion. It was not known whether caloric were preciſely of the ſame nature; but this compariſon ſerved to ſatisfy the mind, and appeared, in ſome degree, to explain the phenomenon.

'A new experiment withdrew philoſophers from their ſecurity, and forced them to feel the inſufficiency of the common language on the ſubject, and which had become habitual to them. This experiment was ſuggeſted firſt by Bacon. "Heat," he remarks, "acquires intenſity by the aid of glaſſes: is it the ſame," he aſks, "with regard to cold?"† It was from him probably that ſome ſucceeding writers borrowed their

* Eſſai ſur le Feu, § 64. † Inſtaurat., l. 5, c. 2.

ideas;

ideas;* but it remained without being put to the teſt of experiment till very lately, when M. Pictet realized it. M. Bertrand, profeſſor of mathematics, ſuggeſted the idea to him; and the following is M. Pictet's account of his experiment. "I diſpoſed the appara-" tus," he remarks, "preciſely as for the reflection of " heat; I employed two tin mirrors, at the diſtance of " $10\frac{1}{2}$ feet from each other. In the focus of one " was an air thermometer, the changes of which were " obſerved with the neceſſary precautions; in the fo-" cus of the other was placed a flaſk full of ſnow. At " the inſtant this was done, the thermometer in the " other focus ſunk ſeveral degrees, and again roſe " when the flaſk was withdrawn. After having re-" placed the flaſk in the focus, and in this way cauſed " the thermometer to ſink to a certain degree till it " remained ſtationary, I poured ſome nitrous acid on " the ſnow; and the cold thus produced made the " thermometer deſcend 5 or 6 degrees lower."†

'On obſerving this reſult, M. Pictet experienced at firſt ſome ſurprize; but he did not heſitate to pronounce, "that this reflection of cold was only ap-" parent, and that it could be only the reflection of " heat, in an inverſe ſenſe."

'However, no explanation founded on the ideas of extenſion, preſſure, or quieſcent equilibrium (equilibrium ſans mouvement), enable us to comprehend in what manner this inverted action of heat was determined. In fact, the mirrors, the air, and all the bodies in the vicinity of the cold matraſs, being all of the ſame temperature one with another, ought, according to theſe ſyſtems, to give out their heat towards this gulph, and in no other direction. We ſee here no reaſon why a ray ſhould iſſue from the thermometer, and paſs excluſively towards the mirror in the focus of which it is placed.

* "Les miroirs ardens concentrent la chaleur; peuvent-ils concentrer le froid?" *Logique* de Felice, t. ii, p. 62.

† Eſſai ſur le Feu, § 69.

'Having

'Having been long accuſtomed to view caloric under another aſpect, I pointed out thoſe difficulties, and endeavoured to draw the attention of philoſophers to the ſubject, in a *Memoir on the Equilibrium of Heat*,* and in my *Reſearches on Heat*.† Theſe writings are, if I am not deceived, the firſt where it has been propoſed to ſubſtitute a moving equilibrium (equilibrium mobile) for the quieſcent equilibrium which philoſophers had before been in the habit of admitting; and the conſequence of this ſubſtitution was, that the phenomenon of the reflection of cold was as fully and eaſily explained as that of the reflection of heat. This, in my opinion, is a character of its truth; for we readily perceive that theſe two facts are homogeneous, and that a good theory ought to explain them both at once, and comprehend them, it may be ſaid, under one and the ſame formula. Permit me to recal this theory here, which I have had the ſatisfaction to ſee adopted by M. Pictet,‡ and other good judges.—A few words will ſuffice to ſhew its principles, which is all I propoſe in this place.

'Fire or caloric, then, I conſider as a diſtinct agitated fluid: each molecule of free caloric is moved with vaſt velocity; one moves in one direction, another in another; ſo that a heated body emits calorific rays in all directions: and theſe molecules are ſufficiently wide aſunder to allow of two or more currents croſſing each other, like light, without mutually deranging each other in their courſe. This conſtitution of fire or caloric being well conceived, if we imagine two neighbouring ſpaces where it abounds, we ſhall ſee that there will be a conſtant and continual interchange of the particles of heat between thoſe ſpaces. If in the two ſpaces the caloric be equally abundant, the interchanges will be equal; there will be an equilibrium. If one of the ſpaces contain more caloric than the other, the exchange will be unequal; the leſs hot will

* Journal de Phyſique, Avril 1791. † Publiſhed at Geneva, in 1792. ‡ Bibl. Brit., tom. iv, p. 30, et ailleurs.

receive

receive more igneous molecules than it will give out; and, after a ſufficient ſpace of time, the continual repetition of theſe interchanges will reſtore the equilibrium.

'From theſe principles flow all the laws of increaſing and decreaſing heat; eſpecially that which has ſerved as the baſis of our comparative calculations of the changes effected in two thermometers expoſed to the ſame ſource of heat, one of them with an intercepting ſubſtance interpoſed, the other without any ſuch obſtacle.

'In fact, let us ſuppoſe a body to be placed in a medium hotter than itſelf, and the temperature of this medium conſtant; we ſhould conſider the heat of the medium in this caſe as compoſed of two parts, one equal to that of the body immerſed in it, the other equal to the difference of the two temperatures. As to the firſt, the interchanges are equal between the body and the medium; there is an equilibrium. The exceſs of heat in the medium may then be conſidered alone; and, relatively to this exceſs, the body is abſolutely cold. Let us ſuppoſe, that, in one ſecond of time, the body receives $\frac{1}{10}$th part of this caloric: at the end of this period the exceſs will be only $\frac{9}{10}$ths. The $\frac{1}{10}$th of this new exceſs will paſs into the body during the courſe of the ſecond *ſecond*, and the exceſs will be reduced to $\frac{9}{10}$ of $\frac{9}{10}$. We perceive, in following this reaſoning, that at the end of the third ſecond the exceſs will be the third power of $\frac{9}{10}$, and ſo on; ſo that (conformably to the obſerved law) the time increaſes in arithmetical progreſſion 0, 1, 2, 3, &c.; whilſt the differences decreaſe in a geometrical ratio 1, $\frac{9}{10}$ $(\frac{9}{10})^2$, $(\frac{9}{10})^3$, &c.

'We infer, with equal facility, the ſame law of cooling, with regard to a body plunged in a medium colder than itſelf.

'Thus the true theory of heat, founded on facts totally different from thoſe by which Richmann proved this law, neceſſarily leads us to the ſame concluſion.

'This

'This theory explains the reflection of cold preciſely in the ſame manner as the reflection of heat, and with neither more nor leſs difficulty. Conceive, with the apparatus of the double mirrors, two thermometers placed, the one in one focus, the other in the other; and let them be at firſt at the ſame degree of temperature. There is an equilibrium; the caloric emitted by each, and returned to the other by virtue of a double reflection, is exactly compenſated by the caloric which the other returns to it by the ſame way, but in the reverſe direction. Now, ſuppoſe one of the thermometers to riſe or fall; immediately (the interchanges being unequal) the other will riſe or fall conformably.

'This theory preſents, in every caſe of heating, three ſpecies of heat. The firſt is that which is immediately received, in a given time, by the body which is heated. The ſecond is the accumulated and magazined heat, as it were, in this ſame body, by virtue of the heat which it acquired in the preceding inſtant. The third is the radiant heat, the effect of the two preceding, and which iſſues inceſſantly from the body in proportion as the others enter it. The conſideration of theſe three diſtinct kinds of heat has an influence in the explanation of ſeveral natural phenomena, particularly in meteorology. I have had occaſion to remark, that the eſtimation of the temperature of the ſeaſons depends on it.*

'To conclude, I ſay, 1. That the effect of any ſource of conſtant heat on the thermometer, in a certain time, is not in proportion to the heat of that ſource. 2. That, nevertheleſs, we have a means of eſtimating the heat of the ſource from its effect on the thermometer, becauſe we know the law which this effect follows in its ſucceſſive augmentations. 3. That this method is the only one which ought to be employed in comparing two ſources of heat, according to their

* Jonrnal de Phyſique, Feb. 1793.

effect

effect in a certain time leſs than that which is required for the maximum of the effect. 4. That, in regard to tranſmitted heat, we muſt diſtinguiſh between that which is tranſmitted at the firſt inſtant, and that which the tranſmitting body adds after itſelf is heated. 5. That, when this diſtinction is neglected, the interception of heat attributed to the plate is only a limit of the ſmallneſs of degree; whilſt it remains undecided whether the interception has not been greater, or even total. 6. That, in applying theſe principles to the experiments of Dr. Herſchell, the appreciation becomes more exact, but depends, nevertheleſs, on ſome acceſſory and hitherto undetermined circumſtances. 7. That, in thoſe very experiments, the apparent difference between the interception of heat and that of light by the ſame bodies eſtabliſhes no legitimate concluſion reſpecting the difference or the identity of light and heat. 8. That the law mentioned above is not only proved by direct experiment, but by its agreement with the true theory of heat. 9. That this theory is eſtabliſhed on various facts totally different from this law, and eſpecially by the reflection of cold; and that it is the only one which accords with the general phenomena of Nature.'

Art. 17. "Of the Rectification of Conic Sections. By the Rev. *John Hellins*, B.D., &c."

Art. 18. "Catalogue of five Hundred new Nebulæ, nebulous Stars, planetary Nebulæ, and Cluſters of Stars; with Remarks on the Conſtruction of the Heavens. By *William Herſchell*, L.L.D., &c."—Our readers will hardly expect from us more than the titles of theſe papers. They, with the uſual Liſt of Donations to the Society, and the Index, terminate the preſent volume.

ART. LXI. *Tranſactions of the Royal Society of Edinburgh.* Vol. 5, Part. 2. 4to, 220 pages. Edinburgh, 1802.

THE preſent faſciculus contains only one paper that has any relation to medicine or the auxiliary ſciences: the title of this is, 'A Deſcription of an extra-uterine Fœtus; by Mr. *Thomas Blizard*, of London.'—The woman in whom it occurred had been ſeveral times pregnant, and had borne more than one living child. She miſcarried about five weeks before her death, and in this interval, as the author ſuppoſes from the appearances, had again become pregnant. On the morning of the day in which ſhe died, at about half paſt eleven o'clock, after having gone through conſiderable fatigue in cleaning her houſe, ſhe was ſeized with a violent pain in the lower part of the abdomen, which continued till her death. She gradually became weaker; her abdomen became more and more ſwollen, and at about nine in the evening ſhe died. Having felt extraordinary ſenſations for a ſhort time before this attack, ſhe expreſſed to her friends a great deſire, that, ſhould ſhe die, her body might be examined.

The abdomen being opened, there appeared, proceeding from the pelvis, a conſiderable quantity of blood, both in a fluid and in a coagulated ſtate: two meaſured quarts were taken from the cavity.

In the middle of the Fallopian tube of the left ſide, nearly at an equal diſtance from its fimbriated extremity and its termination in the uterus, a pouch was formed about the ſize of a pigeon's egg, or a little larger, of an oval form, in the middle of which was a rupture of the bigneſs of a ſmall quill, through which it was plain the blood had iſſued.

On dividing the vagina, there appeared a quantity of jelly, extending from the os uteri; and the ſize of the uterus was increaſed, which led to a ſuſpicion that

that there had been a recent conception. The nature of the case now began to unfold itself. It appeared that an extra-uterine gestation had taken place; that the process was going on in the Fallopian tube, the embryo having rested there instead of passing to the cavity of the uterus; that the tube had enlarged to the capable extent, and then had burst. The fimbriated extremity of the tube was open as usual, and its cavity nearly of the natural size. It possessed also the tortuous form, as is common, till it began to form the pouch. The tube was of its natural size, also, in that half towards the uterus, and was also pervious.

On laying open the pouch, it appeared full of a firm coagulum. Upon breaking through this, at the depth of about a quarter of an inch, there appeared a membranous circle of a lightish colour, about the size of a scarlet bean, and within this another similar membrane presented itself, perfectly distinct from the former: these membranes, the author thinks, probably represented the chorion and amnion. Within the latter nothing could be discovered but coagulum. There was no appearance of fœtus; but it must be remembered, that only five weeks had elapsed since the last abortion.

The uterus was much thickened, being nearly twice its bulk in an unimpregnated state; and, notwithstanding the hæmorrhage which had occurred, its vessels appeared considerably enlarged. The whole surface of its cavity was lined with a softish glutinous substance, which seemed organized, and was much redder than the rest of the uterus.

The ovaria were much vesiculated, particularly the left, in which was a corpus luteum of considerable size: but there was no corpus luteum in the right ovarium. The vesicles in the ovaria were large and much distended, and in appearance exactly similar to the ovaria of a young woman the author had an opportunity of examining who had died from an accident, after having been married but a few days, and

in

in whoſe uterus there were evident marks of impregnation, and in both ovaries corpora lutea. As there was no permanent obſtruction in the Fallopian tube in the caſe recited above, the author thinks there might have been ſome irregular contraction of the tube, which is probably muſcular, that cauſed the embryo to reſt where it did.—The appearances are well repreſented by engravings.

ART. LXII. *Inſtitutiones Medicæ Practicæ quas Auditoribus ſuis Prælegebat* JO. BAPT. BURSERIUS, *de* KANIFELD. *Præmittitur Commentariolum de Inflammatione.* 4 vols. 8vo. Lipſiæ, 1798. Imported by T. BOOSEY. Price 1l. 11s. 6d.

TOO many of our ſyſtematic treatiſes are the work of compilers merely, and of courſe conſiſt for the moſt part of a variety of heterogeneous materials, exhibiting a maſs of incongruous and inconſiſtent doctrines, and very frequently, alſo, of contradictory and ill aſcertained facts. Thoſe whoſe learning and opportunities have made them moſt competent to ſuch a taſk have not often leiſure or induſtry ſufficient to induce them to undertake it. The author of the preſent elaborate treatiſe, however, forms an exception: he has here preſented us with a valuable ſyſtematic work, the reſult of extenſive and apparently accurate obſervation.

Burſerius was born at Trent, in Italy, and, after purſuing and completing his ſtudies at Padua and Bologna, practiſed as a phyſician with great reputation at Faenza, Ferrara, and Pavia. He appears to have diſtinguiſhed himſelf by continued and ſevere ſtudy, and by indefatigable exertion in the diſcharge of his important functions, both as a teacher and practitioner of medicine. Like Boerhaave, he poſſeſſed all the advantages derivable from an accurate knowledge

knowledge of the elementary and connective parts of the ſcience. No man appears to have had a more extenſive knowledge of the beſt ancient and modern writers in phyſic, as the numerous references and quotations diſperſed throughout the work ſufficiently evince. Theſe, he obſerves, are not given from oſtentation, or as a pompous diſplay of medical erudition, but for the purpoſe of illuſtrating and eſtabliſhing facts. The work is compriſed in four volumes; of each of which we ſhall endeavour to give ſucceſſively a clear though brief analyſis.

The author, who had attained the zenith of celebrity for medical ſkill, died at the age of ſixty, and before he had entered on the fourth volume of his preſent undertaking: this, therefore, is poſthumous; but the materials for it being at hand, it is faithfully compiled and judiciouſly arranged. When we conſider the great extent, variety, and importance of the undertaking, and the able manner in which it is executed, together with the uſeful collateral information it affords, by pointing out to us the writings of the beſt authors on the different ſubjects treated of, it perhaps juſtly merits the compliment heretofore paid to the ſyſtem of Boerhaave by Monſ. Queſnoy; viz. that it exhibits *la medecine collective.*

The firſt volume is introduced by a ſhort commentary on inflammation. To this ſucceeds the doctrine of fever in general, and the diviſions and differences it exhibits. The book is then divided into four parts: the firſt of which treats of Intermittent Fevers; the ſecond, of Continent Fevers; the third, of Continued Remittent Fevers; and the fourth, of Continued Compound Fevers, or what the author terms proportionatæ, complexæ, or complicatæ.

On account of the great frequency, importance, and various termination of inflammation, as well as on account of the different means of preventing and curing it, Burſerius thinks proper, as before obſerved, to begin with the conſideration of this. He gives a

brief deſcription of the theories both of the ancients and moderns; examines the merits of each; and, finally, ſubjoins his own, and what he thinks the moſt probable one. The following is his definition of Inflammation. "Quando aliqua corporis pars præter naturam intenſius calet, rubet, tenditur, tumet, dolet, et moleſta quadam pulſatione intus quaſi pertunditur, ea tum *inflammari* ſive incendi dicitur, quod ſimilia ferme patiatur iis, quæ ab igne gignuntur."

Burſerius, differing from all the authors whom he quotes, and who refer the cauſe of inflammation ſimply to an accumulation or congeſtion of blood in the part affected, obſerves, that ſomething more is required to produce inflammation; and this is, the previous application of ſome ſtimulus or irritation to the muſcular fibres or nerves of ſome particular part, or of the whole ſyſtem. His words are, Ergo ſtimulo, irritamento, vellicatione opus eſt, præter ſanguinem uberiorem influxum, ut inflammatio fiat (p. 29). He does not think ſizy blood a certain ſign of inflammation, nor the cauſe of it, but frequently the effect. Neither does he think, with Hewſon, that the formation of the buffy coat depends on the tenuity or denſity of the blood, but upon a greater degree of attraction between its conſtituent parts. He divides inflammations into external and internal; and alſo into ſlight or ſimple, and malignant; ſporadic, and epidemic. At one time it is a primary diſeaſe; at another, ſecondary only: it is ſometimes ſymptomatic, ſometimes idiopathic. It is alſo either general or local. The different terminations of inflammation next follow in the order commonly deſcribed. The treatment recommended in the various ſtages is judicious, and agrees with the practice generally adopted in this country.

We come now to the author's obſervations on fever in general. On this ſubject he enters into a patient and candid examination of the various theories and hypotheſes

hypotheſes that have been hitherto delivered on the ſubject. He examines and appreciates the merits of each of them; but is at laſt obliged to confeſs that none approaches near to certainty or perfection; and that in a diſeaſe ſo obſcure and complicated we muſt be contented at preſent with an hiſtorical deſcription in place of a definition and proximate cauſe. After refuting a number of theories, he obſerves, "Supereſſent adhuc alia quorundam pathologorum deliramenta, in quibus referendis operam, et tempus, ſi vellem, perdere poſſem: ſed tædet jam hujuſmodi occupatione me deſtineri. Quod præ oculis habebam, id mihi videor conſequutus; oſtendere enim fuit animus, nullam conſtitui cauſam proximam poſſe, quæ omnibus ſimul febribus quotquot ſunt cum genere, tum ſymptomatum multiplicium ratione diverſiſſimis, communis revera eſſet: nec, ut puto, inanis et caſſus labor extitit. Quare, cum nulla hujuſmodi cauſa hactenus inventa ſit, nec fortaſſe inveniri ut Cl. Gregorius * autumat, unquam poſſit; cumque nulla earum generica definitio, quæ ſingulas comprehendat, poſſibilis viſa nobis ſit: reliquum eſt ut in hiſtorica tantum deſcriptione, quæ præcipua febris phenomena oculis ſubjiciat, conſiſtere debeamus. Appoſite Gorterius, 'de multis,' inquit, 'rebus, nihil aliud conſtat, quam quædam phenomena;' cur ergo his non erimus contenti de febre?"

Reſpecting the ſymptoms which, taken conjointly, denote the preſence of fever, Burſerius obſerves, that phyſicians, in determining this point, are accuſtomed to explore the motion of the arteries at the wriſt, and ſometimes at the temples; to examine the heat of the ſkin, of the breaſt and forehead; to inſpect the urine, the colour and condition of the face, eyes, and tongue; to obſerve how the various functions are performed; and by theſe, ſingly or conjointly taken, to judge of the exiſtence of a febrile ſtate. But the pulſe, the

* Praxis Med.

author obſerves, is exceedingly various in ſuch caſes: it may be ſmall, weak, ſlow, unfrequent, contracted, and unequal; or it may be great, ſtrong, quick, frequent, full, and regular; hard or ſoft; according as the fever is at the commencement, increaſe, height, or in the remiſſion and termination; or as the genus and nature of the fever itſelf may chance to differ. So, alſo, the heat may be equally diffuſed, or confined to particular parts: ſometimes the external parts are cold, with a ſenſe of internal heat; at others, there is general heat or cold over the body; and ſometimes the heat is natural. Sometimes the urine is crude and watery; at others red and thin; or often thick, like that of cattle, ſoon becoming turbid, and depoſiting a ſediment: ſometimes it is of a natural appearance. The face is now pale, now red, or ſwelled; now it has the natural look, now the reverſe of this. The eyes are heavy, languid, and ſad; or red, and impatient of light; they are prominent, diſtorted, or wild; ſhining, dull, or ghaſtly; ſometimes bedewed with tears, and deprived of their uſual luſtre. The tongue is generally dry, chapped, ſcabrous, red, white, or variegated; often covered with mucus, but not unfrequently moiſt and natural, without any thirſt. A bitter or ſome other diſagreeable taſte is perceived in the mouth. The breathing is frequent, hot, unequal, or impeded: the breath is often offenſive. Appetite nearly extinct, ſometimes accompanied with nauſea. In a few inſtances ſome appetite for food remains. To theſe are added pain in the back, limbs, and head; depreſſion of ſtrength, watchfulneſs; or, on the other hand, heavineſs, ſtupor, or imbecility of mind, delirium, diarrhœa, or conſtipation, vomiting, tenſion of the hypochondria, ſubſultus tendinum, emaciation, and other affections ariſing with the fever itſelf, or gradually ſupervening to it. The antecedent ſymptoms are, ſpontaneous laſſitude, little and diſturbed ſleep, heavineſs and liſtleſſneſs of the head and whole body, depravation of the natural and animal

functions,

functions. From the diligent examination of all theſe we are enabled to judge of the preſence or abſence of fever; not from any of them ſingly taken, but from their conjoined appearance.—From this variety of ſymptoms characterizing fever, it is needleſs, the author obſerves, to look for a proper and conciſe definition of it.

With regard to the cure, Burſerius obſerves that we muſt take care that the febrile motion neither be in exceſs, nor too languid and defective. If it be moderate, it ſhould be left to itſelf; if violent, it ſhould be reſtrained; and if too languid, it is to be excited, regard being had to the powers of life and the period of the diſeaſe. In this regulation of febrile action almoſt the whole art of the practitioner lies; a truth known only to thoſe that have attentively and frequently obſerved the healthful and morbid movements of Nature; for theſe ſhe frequently employs to get rid of diſeaſes. The phyſician ought, therefore, to imitate her in this reſpect; remaining inactive where ſhe appears adequate to her taſk, or gently exciting the febrile action when it languiſhes and appears to call for ſuch excitement.—Where plethora appears to be the cauſe of the fever, it is to be removed by timely venæſection. On the other hand, where the pulſe is quick or ſlow, and at the ſame time weak, or ſmall, low, and depreſſed, and the animal powers languiſh, then nature is to be rouſed by nutritious broths, analeptic and cordial medicines, and ſometimes by thoſe of a heating kind, as wine, which is often of great ſervice.

Burſerius objects to the uſe of emetic tartar given for the purpoſe of removing ſpaſm, and promoting a diaphoreſis. He recommends the uſe of anodynes and opiates in fever, to leſſen irritability, abate or remove ſpaſm, and to promote perſpiration.

Intermittents he divides into vernal and autumnal, and into mild and malignant: he alſo makes ſeveral

other diviſions, but which, perhaps, have no very uſeful tendency The following is his mode of exhibiting the bark in the ſevere and complicated form of intermittent fever, which he calls pernicioſa comitata, where danger is to be apprehended with every return of the paroxyſm. In fevers of this ſort it muſt be remarked, he obſerves, that an ounce of bark is required to prevent the next acceſſion, which may prove fatal: nor is this always a ſufficient quantity; for experience has often ſhewn that an ounce and a half are neceſſary for this purpoſe: according, however, to the different length of the interval, as Torti has properly remarked, the whole quantity of the remedy is to be divided and exhibited. Where the interval is ſhort, immediately on the commencement of the intermiſſion half an ounce, or, in ſtill more urgent caſes, ſix drachms of the bark ſhould be exhibited at once. The remainder is to be given in divided doſes during the reſt of the remiſſion or intermiſſion, but ſo that the doſes be gradually reduced, and the ſmalleſt given the laſt of all; to wit, a few hours before the expected return of the fit. When the interval is longer, the remedy may be divided into ſmaller doſes, and exhibited leſs frequently, ſo that the firſt and ſecond doſes do not exceed three drachms, and the remaining ones two. For the chief point to be attended to is, that the whole quantity neceſſary for putting a ſtop to this variety of the diſeaſe be taken previous to the next acceſſion, which may terminate fatally, and ought, therefore, by all means to be prevented; obſerving this caution, that the firſt doſe be the largeſt of all: for, if a contrary method be purſued, the wiſhed for end will not be obtained; becauſe the firſt doſe of it in ſuch caſe being inſufficient to ſtop the fever, although time enough be given for its action, the latter ones will come too late to counteract the febrile cauſe.

Under the term *Continent Fevers*, Burſerius deſcribes the ephemera, ſynochus imputris, ſynochus putris, continens

tinens lenta maligna, nervoſa dicta, and hectica. Of continent fevers he thus ſpeaks:—Hinc ſimplices ſive unius circuitus, præ reliquis febrium generibus et videntur eſſe et reputantur. Ita tamen earum continuitas accipienda eſt, ut non quovis tempore una eademque febris vis, atque eadem ſymptomatum intenſio urgeat; ſed in principio et remiſſione morbi omnia mitiora ſunt, graviora vero in augmento, et ſtatu, quemadmodum in aliis morbis fieri conſuevit.—The author contends for the exiſtence of ſuch fevers, notwithſtanding the objections of Cullen; but he admits they are of rare occurrence.

In ſynocha there is nothing peculiar in the method medendi. Synochus, he obſerves, differs only in degree from ſynocha.—Hinc cauſæ omnino eædem, quæ ſynochum *ſimplicem*, pariunt etiam *putrem*, ſed vehementiores, et ſanguinem ipſum non ſolum motu, verum etiam craſi et qualitate pervertentes, ſic ut non ſola cutis excretio cohibita, ſed et vaſorum obſtructio, aut ſanguinis congeſtio, aut diatheſis phlogiſtica, ſive ut veteribus dicebatur, putredo accuſanda ſit. It alſo requires, he obſerves, a ſimilar cure.—After ſynochus comes the febris lenta nervoſa, vel typhus mitior Culleni; and under the appellation of putrid malignant petechial fever he deſcribes the typhus gravior of Cullen.

In both thoſe ſpecies of fever Burſerius greatly diſapproves of bleeding and purging, except in ſome few caſes where there are evident marks of plethora, and the ſtrength not much diminiſhed; the pulſe good, with the concurrence of a proper age, habit of body, ſeaſon of the year, and eſpecially a phlogiſtic diatheſis; and even in ſuch caſes, he obſerves, it muſt be done at the beginning only, and with a cautious hand. In all caſes where veneſection is improper, purging muſt be ſo likewiſe. For the relief of local affections he judiciouſly orders local detractions of blood by cupping and leeches. He ſays, emetics in the beginning excel all other remedies. He warmly

recommends the uſe of bliſters to various parts of the body in every ſtage of the diſeaſe, and ſays, he has experienced the beſt effects from them. Cum igitur in hujuſmodi febre vis irritabilis, et nervea potiſſimum torpeat, et vitalis humorum circuitus, in primis circa encephalum, quodammodo reſtitet, quid cantharidibus cuti admotis ad illam excitandam, atque ad hunc promovendum erit præſtantius? quid accommodatius? quid ad revellendum, extrorſumque avocandum expeditius?

Upon the whole, he obſerves, the chief foundation of the cure muſt reſt, as the experience of the greateſt phyſicians has taught us, in ſupporting the depreſſed powers, and inciting them, when deficient, by moderate ſtimuli; in diluting the maſs of fluids, and throwing into the blood new and healthy juices for the purpoſe of replacing thoſe which have become vitiated and acrimonious.

The particular means for reſtoring the depreſſed ſtrength by gently ſtimulant and corroborant medicines and food, and for quieting by anodynes the irregular nervous movements of the ſyſtem, are detailed at length, and proper cautions given againſt the exceſſive employment of any of them.

Burſerius doubts the exiſtence of hectic fever as a primary diſeaſe, and ſays, Ego, ut verum fatear, in toto meæ praxeos curriculo, non memini hecticam hujuſmodi vidiſſe.

Part 3 treats of Continued Remittent Fevers, or ſimply Remittents. The author admits catarrh into the order *febres*, and alſo the febris lactea puerperarum, and the puerperalis neotericorum.

In the 4th part, Continued Compound Fevers, or what are termed the proportionatæ, are diſcuſſed.—An appendix on Colliquative Primary Fever terminates the firſt volume. The contents of the remainder will be briefly noticed in our next.

ART.

ART. LXIII. *Practical Information on the Malignant Scarlet Fever and Sore Throat, in which a new Mode of Treatment is freely communicated. By* E. PEART, *M.D.* 8vo, 64 pages. London, 1802.

ART. LXIV. *Practical Information on St. Anthony's Fire, or Eryſipelas, and on Erythematous Affections in general; as alſo on the Meaſles, in which new Modes of Treatment are communicated. By* the ſame. 38 pages.

ART. LXV. *Practical Information on Inflammation of the Bowels and Strangulated Rupture, in which a new Method of treating thoſe Diſorders is faithfully communicated. By* the ſame. 38 pages.

THESE three pamphlets hardly require to be ſeparately noticed, as the information they convey admits of being brought within a very narrow compaſs. The chief purport of the firſt is, to recommend the uſe of the volatile alkali, in doſes of five or ſix grains, frequently repeated, as a remedy in the malignant ſore throat and ſcarlet fever. From this medicine, the author obſerves, he has obtained ſuch extraordinary advantages, as entitle it almoſt to the name of a ſpecific in thoſe affections.

The ſame remedy, combined with the *confectio aromatica*, is, in the *ſecond* pamphlet, as ſtrongly recommended for the cure of eryſipelas and meaſles. In the *third*, the *new* mode of treatment conſiſts in giving five grains of calomel, and one grain or more of opium, according to the degree of pain: theſe to be repeated every hour or two, till relief is procured. This plan the author finds to be equally efficacious in ſimple enteritis, and in that produced by a ſtrangulation of the inteſtine.

ART.

ART. LXVI. *Collections for an Essay towards a Materia Medica of the United States.* By BENJAMIN SMITH BARTON, *M.D.*, &c. Part I, 8vo, 64 pages. Philadelphia, 1801.

WE introduce this article for the purpose of giving the author's remarks on the properties of a substance little known amongst us, the *Melia Azedarach*, but which seems to possess valuable anthelmintic virtues. His previous observations on Tobacco, likewise, merit notice.

" *Common tobacco.* There is a peculiar mode of employing the leaves of the tobacco in cases of worms, which I cannot avoid mentioning in this place, especially as it has, in many instances, produced very happy effects. The leaves are pounded with vinegar, and applied, in the shape of a poultice, to the region of the stomach, or other part of the abdomen. In consequence of this application, worms are often discharged, after powerful anthelmintics have been exhibited internally in vain. We ought not to be surprised at this effect of the tobacco, since we know that the same vegetable, applied externally, is often very efficacious in inducing vomiting. Accordingly, I have, for some years, been in the habit of applying tobacco leaves to the region of the stomach of persons who have swallowed large quantities of opium, and other similar articles, with the view to destroy themselves. It is well known, that in these cases the stomach is often extremely inirritable, insomuch that the most powerful emetics have little effect in rousing that organ into action. Here, as an auxiliary at least, the tobacco, used in the manner I have mentioned, is certainly very useful, and, in many instances, ought not to be neglected.

" *Melia Azedarach.** When I published the first edition of my *Collections*, I had not *any* experience

" * Pride of India, called, in South Carolina, poison-berry tree and China tree.

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in the uſe of this vegetable. Since that period, however, I have uſed it in ſeveral caſes of worms, and always with advantage. Indeed, I am inclined to think that the character of this new anthelmintic has not been too highly drawn. I will not aſſert that it ought to be preferred to the ſpigelia; for I have had much more to do with this than with the melia. The melia is unqueſtionably a valuable anthelmintic, and ought to be introduced into general practice. I have employed the bark of the root both in ſubſtance and in the ſhape of a ſaturated decoction. In the caſe of an adult, who took the decoction in large quantities, *with the effect of diſcharging great numbers of worms*, it ſeemed to occaſion ſome confuſion of the head, and trembling of the hands. Theſe, perhaps, were accidental ſymptoms; but I am diſpoſed, with the patient, to aſcribe them to the medicine. The worm-caſes in which I have found the melia uſeful were caſes of the common round worm, or lumbricus inteſtinalis. I have not had any opportunity of trying how far it is a remedy againſt the tænia, or tape-worm; but I am informed that, in Carolina, it has been uſed with the effect of diſcharging great numbers of this ſpecies of worm. Should this prove to be the caſe, the melia will be doubly entitled to our attention as an article of the materia medica. It is not merely in caſes of worms that this vegetable has been found uſeful. Mr. Andrew Michaux, an intrepid French botaniſt, informed me, that in Perſia, where this tree grows ſpontaneouſly, the pulp which inveſts the ſtone of the fruit is pounded with tallow, and uſed as an 'antipſoric,' in caſes of tinea capitis in children.

"Is the melia a narcotic or poiſonous vegetable? Its remarkable effects in deſtroying and diſlodging worms render this probable, but not certain: for many articles which, with reſpect to the human body, are entirely innocent, are known to be noxious to inteſtinal worms, and many other animals. Such is ſugar, as has been demonſtrated by the experiments of Redi, Carminati,

Carminati, and other writers. The caſe which I have alluded to renders the deleterious quality of this vegetable very probable. I may add, that in ſome parts of Carolina the root is deemed poiſonous. Horſes and horned cattle, however, eat, with impunity, the leaves and berries. Certain ſpecies of birds (particularly the turdus migratorius, or robin, and the turdus polyglottos, or mocking bird) devour the berries in ſuch large quantities, that, after eating of them, they are obſerved to fall down, and are readily taken. Does not this circumſtance render it probable that the berries contain an intoxicating quality? This, however, I believe, is not the general opinion of the inhabitants of Carolina, who aſcribe the condition of the birds merely to the circumſtance of their having eaten ſo abundantly of the berries, that they injure entirely by diſtention. The ripe berries have a ſweetiſh but nauſeous taſte.

" As the melia is now completely naturalized to the States of Carolina and Georgia, it may not be amiſs to cloſe this article by obſerving, that the fruit of this vegetable is employed in Japan for furniſhing an expreſſed oil, which grows hard like tallow, and is uſed for making candles. May not our fellow citizens to the ſouth render it worth their attention to follow the example of the Japaneſe in the inſtance I have mentioned?"

ART. LXVII. *Six Introductory Lectures to Courſes of Lectures upon the Inſtitutes and Practice of Medicine, delivered in the Univerſity of Pennſylvania. By* BENJAMIN RUSH, *M.D., Profeſſor of Medicine in the ſaid Univerſity.* 8vo, 168 pages. Philadelphia, 1801. (From the N. Y. Med. Rep. vol. 5, No. 3.)

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THE ſubjects of this volume are various, and conſiſt of introductory addreſſes to the author's pupils, delivered in ſucceſſive years to different claſſes.

Lecture 1ſt treats of "*the neceſſary connection between obſervation and reaſoning in medicine.*" In the diſcuſſion of this ſubject the author exhibits the ſeveral pretenſions and defects of empiriciſm and dogmatiſm, when either ſeparately arrogates to itſelf the right of conducting medical practice; and ſhews that it is only by a combination of both that the ſcience of medicine can be made to convey extenſive and laſting bleſſings to mankind. The ſyllabus which follows, of his courſe of lectures upon phyſiology, pathology, therapeutics, and the practice of medicine, gives an outline of what is moſt neceſſary to be taught and underſtood in thoſe important branches of ſcience, and affords evidence of the Profeſſor's comprehending in his plan of inſtruction many ſubjects which have eſcaped the attention of other teachers.

Lecture 2d exhibits an intereſting view of "*the character of Dr. Sydenham.*" A great number of circumſtances combine to render that phyſician an object of veneration, and to hold up his conduct and character as an example to all ſucceeding times. His improvements undoubtedly form an æra in the hiſtory of medicine. In this portrait of him which Dr. Ruſh draws, the originality, boldneſs, and vigour of his underſtanding are forcibly repreſented; his independence of authorities and preconceived opinions; the comprehenſiveneſs of his views, and the ſolidity of his judgment; his attention to the effects of peculiar ſeaſons and climates; his admirable mode of exhibiting the hiſtory and ſymptoms of diſeaſes; his diſcovery of the laws of nature relative to the riſe, progreſs, comparative force, and ſucceſſion of epidemics; the ſimplicity and efficacy of his remedies; and the correctneſs of many of his theoretical opinions. In addition to this diſplay of profeſſional excellence, Dr. R. draws, with equal force and felicity, the ſocial, moral.

moral, and religious character of Dr. Sydenham, in all which reſpects he is deſervedly held to be a model for imitation.

Lecture 3d unfolds a catalogue of the "*cauſes of death in diſeaſes that are not incurable.*" It is melancholy to reflect, that, amidſt all the imperfection and feebleneſs of the medical art, the ſucceſs of it ſhould be ſtill further curtailed by the ignorance, negligence, prejudices, follies and vices of the ſick themſelves, or of thoſe who undertake the management of them. Such cauſes of death are diſtributed under three heads: 1. Thoſe which are derived from phyſicians; 2. Thoſe which ariſe from the conduct of ſick people; 3. Thoſe which ariſe from the conduct of attendants and viſitors.

Lecture 4th diſplays "*the influence of phyſical cauſes in promoting an increaſe of the ſtrength and activity of the intellectual faculties of man.*" On this ſubject the author treats of the effects produced on the mind by aliment, drinks, opium, tobacco, different poſitions of the body, dreſs, weakneſs, diſeaſe, pain, ſleep, certain ſounds, temperature of the air, rural and mountainous ſituations, reſidence in cities, ſilence and ſolitude, darkneſs and blindneſs, particular ſtudies and amuſements, variety of ſtudies, the exerciſe of compoſition, the paſſions, the will, converſation, politics, religion, aſſociation, &c.

Lecture 5th offers a very inſtructive and intereſting view of "*the vices and virtues of phyſicians.*" The facts and examples which the author adduces on this ſubject are judiciouſly ſelected, and cannot fail to attract the attention of every reader. On the one hand, thoſe profeſſional vices which too often diſgrace practitioners of medicine, and hold them up to public deteſtation, are faithfully ſketched; while, on the other hand, for the encouragement and example of all who are awake to impreſſions of excellence, the author has exhibited ſome of the moſt brilliant inſtances of virtue that can adorn the human character.

Lecture

Lecture 6th exhibits "*the cauſes which have retarded the progreſs of medicine, and the means of promoting its certainty and greater uſefulneſs.*" A very comprehenſive enumeration of thoſe cauſes is delivered in this lecture. What the author ſays on the ſubject of noſology is ſo much entitled to conſideration, that we ſhall preſent it in his own words.

"The laſt cauſe I ſhall mention, which has retarded the progreſs of medicine, is the diviſion of diſeaſes into genera and ſpecies, by means of what has lately received the name of noſology. Upon this part of our ſubject I ſhall be more particular than was neceſſary under any of the former heads of our lecture, for no one of the cauſes which has been aſſigned of the imperfection of our ſcience has operated with more effect than the noſological arrangement of diſeaſes. To expoſe its unfriendly influence upon medicine, it will be proper firſt to repeat, in part, what I have publiſhed in the fourth volume of my Inquiries and Obſervations, before I proceed to mention the manner of its operation.

"1ſt. Noſology preſuppoſes the characters of diſeaſes to be as fixed as the characters of animals and plants: but this is far from being the caſe. Animals and plants are exactly the ſame in all their properties that they were nearly ſix thouſand years ago; but who can ſay the ſame thing of any one diſeaſe? They are all changed by time, and ſtill more by climate, and a great variety of accidental circumſtances. But the ſame morbid ſtate of the ſyſtem often aſſumes, in the courſe of a few days, all the ſymptoms of a dozen different genera of diſeaſes. Thus a malignant fever frequently invades every part of the body, and is at once, or in ſucceſſion, an epitome of the whole claſs of Pyrexiæ in Dr. Cullen's Synopſis.

"2d. The noſological arrangement of diſeaſes has been attempted from their cauſes and ſeats. The remote cauſes of diſeaſes all unite in producing but one effect—that is, irritation and morbid excitement—and,

of

of courſe, are incapable of diviſion. The proximate cauſe of diſeaſes is an unit; for whether it appears in the form of convulſion, ſpaſm, a proſtration of action, heat, or itching, it is alike the effect of ſimple diſeaſed excitement. The impracticability of dividing diſeaſes into genera and ſpecies from their ſeats, will appear, when we conſider the feeble ſtate of ſenſibility in ſome of the internal organs, and the want of connection between impreſſion and ſenſation in others, by which means there is often a total abſence of the ſign of pain, or a deceitful and capricious tranſlation of it to another part of the body, in many diſeaſes. In the moſt acute ſtage of inflammation in the ſtomach, there is frequently no pain, vomiting, nor ſickneſs. The liver, in the Eaſt Indies, undergoes a general ſuppuration, and ſometimes a partial deſtruction, without pain, or any of the common ſigns of local inflammation. Dr. Chiſholm, in his Eſſay upon the malignant Weſt-India Fever, mentions its fatal iſſue in two ſailors whomhe diſſected, in one of whom he diſcovered great marks of inflammation in the lungs, and in the other a mortification of the right kidney; but in neither of them, he adds, was perceived the leaſt ſign of diſeaſe in thoſe viſcera during their ſickneſs.* Baglivi found a ſtone in the kidney of a man who had complained of a pain only in the kidney of the oppoſite ſide during his life. I have loſt two patients with abſceſſes in the lungs, who complained only of a pain in the head. Neither of them had a cough, and one of them had never felt any pain in his breaſt or ſides. Many hundred facts of a ſimilar nature are to be met with in the records of medicine. Even in thoſe caſes where impreſſion does not produce ſenſations in remote parts of the body, it is often ſo diffuſed, by means of what has been happily called, by Dr. Johnſon, 'an intercommunion of ſenſation,' that the preciſe ſeat of a diſeaſe is ſeldom known. The affections of the bowels

" * Vol. 1, p. 184.

and

and brain furniſh many proofs of the truth of this obſervation.

" Errors in theory ſeldom fail of producing errors in practice. Noſology has retarded the progreſs of medicine in the following ways.

" 1ſt. It precludes all the advantages which are to be derived from attacking diſeaſes in their forming ſtate, at which time they are devoid of their noſological characters, and are moſt eaſily and certainly prevented or cured.

" 2d. It has led phyſicians to preſcribe excluſively for the names of diſeaſes, without a due regard to the condition of the ſyſtem. This practice has done the moſt extenſive miſchief where a malignant or inflammatory conſtitution of the atmoſphere has produced a ſingle or predominating epidemic, which calls for the ſame claſs of remedies under all the modifications which are produced by a difference in its ſeat and exciting cauſes.

" 3d. It multiplies unneceſſarily the articles of the materia medica, by employing nearly as many medicines as there are forms of diſeaſe.

" I know it has been ſaid, that, by rejecting noſology, we eſtabliſh indolence in medicine; but the reverſe of this aſſertion is true: for if our preſcriptions are to be regulated chiefly by the force of morbid excitement, and if this force be varied in acute diſeaſes by an hundred different circumſtances, even by a cloud, according to Dr. Lining, leſſening, for a few minutes, the light and heat of the ſun, it follows, that the utmoſt watchfulneſs and ſkill will be neceſſary to accommodate our remedies to the changing ſtate of the ſyſtem."

ART. LXVIII. *Remarks upon Chemical Nomenclature, according to the Principles of the French Neologiſts. By* RICHARD CHENEVIX, *Eſq., F.R.S.,*

&c. 12mo. 246 pages, price 4s. London, 1802. Bell.

At firſt, Mr. Chenevix obſerves, the advantages of a methodical nomenclature in chemiſtry may have been thought hypothetical; but the experience of more than a dozen years has ſufficiently demonſtrated its utility. The unſkilled are not now deterred from entering upon the ſcience from an apprehenſion of being loſt in a wilderneſs of detail; but cheerfully go forward in that career, at the entrance of which they perceive ſo much ſymmetry and order. This improvement, among many others, we owe to Lavoiſier, Berthollet, Fourcroy, and Guyton; and we are indebted to Dr. Pearſon for having adapted to the Engliſh language the reform which thoſe illuſtrious chemiſts had propoſed to the French academy. A change in nomenclature was a natural conſequence of ſo great a change in chemical doctrines as took place about that period; and a fair opportunity was offered and embraced for making the reform radical and extenſive.

From the nature of the ſubject, however; from the circumſtances under which the ſyſtematic language was formed; and from the diſcoveries which, ſince its formation, have been made in chemiſtry, perfection in the preſent ſtate of chemical language is not to be expected. Mr. Chenevix, in the work before us, has pointed out the moſt ſtriking of the errors which have crept in, and which may be conſidered as deviations from the principles on which the new nomenclature was eſtabliſhed. He proceeds, therefore, to mention,

1ſt. The moſt common miſtakes, ariſing chiefly from inattention, but, in ſome degree, from miſapplication of the principles.

2d. The terms, which, in the ſyſtem of nomenclature, propoſed in our language, do not ſeem to be the

the moſt appoſite to render the French expreſſion. And,

3d. Some denominations, which, in the French ſyſtem of nomenclature, and in our tranſlation of it, are manifeſt deviations from the fundamental principles on which the entire ſyſtem of methodical nomenclature was intended to be formed.

Before proceeding to particularize theſe, the author lays down the rules upon which the new nomenclature was originally founded, as the ſtandard of reference in examining the propriety of particular terms; and which rules, as they are brief and pointed, we ſhall here tranſcribe.

'*Rules.* 1. The denominations of ſimple bodies ſhould denote ſome ſtriking quality, or be altogether inſignificant.

'N. B. This is a rule founded on the eſſence of the thing. But, for the ſake of the ſtructure of language, the radical name ſhould be ſuch as to admit of eaſy derivatives.

'2. Combinations of ſimple combuſtible bodies one with another, or with an alkali, if they are not metallic, are to be denoted by the name of one of them, which muſt be made to terminate in URET, and by the name of the other, preceded by the particle OF.

'N. B. Metallic combinations are called ALLOYS or AMALGAMS.

'3. The combinations of all combuſtible bodies with oxygen are to receive compound names, expreſſive of their degree of oxygenizement; the firſt, if not endowed with acid properties, being an oxide.

'4. The firſt ſtate of acidity is to be marked by the name of the ſubſtance, and ſhould terminate in EOUS or OUS; the ſecond ſhould terminate in IC.

'5. The generic termination, joined to the name of the radical, for ſalts formed by the firſt genus of acids, is ITE; that of the ſecond is ATE.

'6. Undecompoſed acids are to bear the name of the ſubſtance from which they were originally extracted, or in which they are now commonly found.

'7. Vegetable ſubſtances, on account of being combinations of the ſame materials in different modes and proportions, cannot be brought under the preſent rules; and, therefore, at leaſt till further light be thrown upon them, they are ſubject to thoſe already laid down for the denomination of ſimple ſubſtances.

'8. Animal ſubſtances are in the ſame predicament.'

Mr. Chenevix then proceeds to point out the errors which exiſt in common language, and in books, on the ſubject; a few of the moſt ſtriking of theſe we ſhall here notice, but for the whole muſt refer to the work itſelf, which is well worth the attention of all lovers of chemical ſcience.

In ſpeaking of the gaſes, the author objects to the unneceſſary creation of adjectives, as *oxygenous*, *azotic*, gaſes, &c. It is, he obſerves, perfectly conſiſtent with the idiom of the Engliſh language to join two ſubſtantives by a hyphen, and, by their union, to form a new one: hydrogen-gas, azote-gas, &c. We ſhould thus, alſo, avoid the terminations *ous* and *ic*, which, in the general ſyſtem, have been applied to denote ſpecific degrees of oxygenizement in the acid.

The terms *potaſh*, *ſoda*, *barytes*, &c. ſhould be employed to denote thoſe ſubſtances in their pure ſtate, and not as combined with carbonic acid. The following remarks occur on azote and its combinations.

'It is not very eaſy to ſee upon what principle the term AZOTE has been propoſed to expreſs the ſimple ſubſtance; while its oxides and its acid have received names totally different from the radical. This is a groſs violation of rule, and has often been remarked before. Either the oxides and acid ſhould have been called OXIDES OF AZOTE, and AZOTIC ACID, or the baſis ſhould have received its name from its compounds.

compounds. The former had been the more regular method, although the latter has been more generally adopted. Chaptal was the firſt who propoſed the term NITROGEN, to ſignify AZOTE; and we have now many derivatives from that ſource.

'That nitrogen ſhould enter as a component part into ammonia, is no more an argument againſt its bearing the name of NITROGEN, than to ſay, that, becauſe hydrogen is a component part of hydro-ſulphuret, it cannot bear the name of generator of water. The moſt ſtriking property of nitrogen is to form nitric acid, as that of hydrogen is to form water. For, notwithſtanding the aſſertion of ſome chemiſts, that azote is a component part of all the alkalis, its preſence never has been proved in any but the one. ALKALIGEN, therefore, cannot be adopted as the proper name of this ſubſtance.

'Nothing is more common than to find chemiſts contending about their priority of claim to the aſſertion, that potaſh is a compound of lime and azote, and ſoda a compound of magneſia and azote. But bare aſſertions, without proof, deſerve as much credit, and are entitled to as much praiſe, as theories without facts. Nothing is leſs difficult than to affirm; and a conjecture, which bears a ſhow of plauſibility, is a ſafe and eaſy method of acquiring a reputation of ſagacity. When an author hazards ſome aſſertion of this nature, even though it never be proved, ſtill it *may* be true; and in expectation of that proof he enjoys the fame of ingenuity. If it be diſproved, neither his veracity, nor his reputed ſkill, incurs any riſk; for he has made nothing more than a conjecture. And, if chance ſhould ſtand his friend in directing his choice to ſome aſſertion, which at laſt is found to be true, he blaſts by a word all the glory which ſhould belong to the real diſcoverer, the perſon who aſſerts, upon conviction. The alkalis, except the one, cannot at this moment be conſidered as compound bodies; or, if they can, then do I maintain, that every thing is compound in nature. It is not aſſertion that

can reſolve a compound into its elements. This muſt be done by experiment, if it can be done at all. Thoſe who have aſſured us that potaſh and ſoda are compound bodies, have done ſo unphiloſophically and diſingenuouſly; and, if ever they ſhould be proved to be compoſed of lime or magneſia with azote, it is hoped that the ſcientific world will totally diſregard any actual claimants, and detract no ſhare of the praiſe from him who may be fortunate enough to become the real proprietor of the diſcovery. Muriatic acid is in the ſame predicament. It is as much proved that hydrogen is its baſis, as that azote is a part of potaſh, or of ſoda. When ſuch unfounded aſſertions come from ignorant pretenders, they fall unnoticed. But every true friend of ſcience muſt grieve to ſee them attached to the names of men who do not want, and ſhould be above ſuch unworthy attempts to enſnare fame. The ingenuous and candid philoſopher refuſes to meet them on ſuch grounds as thoſe. I hope this digreſſion will be pardoned, as it is my wiſh merely to vindicate the rights of the fair dealer in ſcience againſt the ſubterfuges of the foreſtaller and monopoliſt.

'The compounds of azote have, ſince the formation of the new nomenclature, been found more numerous than was then imagined. To that which has been laſt diſcovered, the name of GAZEOUS OXIDE OF AZOTE has been given; and has ſince been changed by Mr. Davy to NITROUS OXIDE. Either of theſe names may be wrong, or may be right, according to the point from which we are ſuppoſed to depart as the principle of denomination in the ſimple ſubſtance. If AZOTE be the radical, it was altogether uſeleſs to propoſe any alteration. But if NITROGEN be the name of the ſimple ſubſtance, I agree with Mr. Davy, with regard to the principle upon which he called it NITROUS OXIDE. The next degree of oxidizement of this ſubſtance, previous to acidification, is the compound called NITROUS GAS.

But

But what degree of oxygenizement is marked, or what difference (except that the one is called GASEOUS, and that the other may be in any ſtate) is announced by ſuch appellations, I am at a loſs to conjecture. GAZEOUS OXIDE OF AZOTE and NITROUS GAS appear to me, as I before obſerved, to mean, according to the principles of nomenclature, one and the ſame thing; but they are, in fact, very diſſimilar, and ſhould be as diſtinguiſhed from each other in name, as they are different in nature.'

Mr. Chenevix afterwards obſerves, that the authors of the new nomenclature paid too much reſpect to the opinions of prejudiced individuals, when they omitted to baniſh from their ſyſtem whatever bore marks of the myſteries of alchemy, or the ſecrets of empirical impoſition. The eſſay of Dr. Dickſon on chemical nomenclature is criticiſed with minuteneſs, and not unjuſt ſeverity. The innovations propoſed by Mr. Kirwan are alſo objected to, as neither being in conformity with the French ſyſtem, nor making a part of any independent ſyſtem.

'Mr. Kirwan,' the author obſerves, 'makes ſome obſervations upon the preface to Lavoiſier's Treatiſe on Chemiſtry, and finds fault with that immortal author, and with M. de Morveau, for ſaying, that the memory of learners is much aſſiſted by compound denominations expreſſing the compound ingredient of ſubſtances. Mr. Kirwan replies, that the ſcience is not to be charged with a cumberſome train of words, merely to gratify the indolence of beginners. There is a very wide difference between the gratification of indolence and the removal of difficulties; between the neceſſary application without which no ſcience can be attained; and the labour which muſt be employed to find out the way amid the darkneſs in which chemiſtry was, till lately, enveloped.

'When I was at Paris, where there is ſo much opportunity for acquiring true ſcientific chemical inſtruc-

tion, I had opportunities of making obſervations in three ſchools where chemiſtry was taught. In the firſt, the old method was followed in all its integrity, both with regard to names and principles. In the ſecond, the profeſſor had adopted the modern theory in its full extent; but being ſomewhat advanced in years when it was eſtabliſhed, and his enmity to all innovations being particularly ſtrengthened from his having been a ſufferer by ſome, he could not bring himſelf, in the familiar ſtyle of his lectures, to uſe, or even much to recommend the methodical nomenclature. In the third ſchool, both the new theory and the new nomenclature were adopted and ſtrenuouſly recommended. In this ſchool, the ſtudents made the moſt rapid progreſs, and from it have proceeded ſome of the firſt chemiſts that now cultivate the ſcience. The ſucceſs of the ſecond ſchool was ſuch as might be expected from the leſſons of a very learned and venerable teacher, who however neglected the uſe of ſuch blandiſhments as might allure the taſte, and relieve the underſtanding; while the firſt was an object of mockery and deriſion to the few who had leiſure and patience to attend a whole lecture, without comprehending a ſingle word that had been ſpoken. The advantages, therefore, of a methodical nomenclature are not leſs proved by this practical fact than the clearneſs of the Lavoiſierian ſyſtem.

'It is very true, that ſyſtems are creatures of convenience; but M. Lavoiſier is rather to be cenſured for having preſerved BORAX and NITRE, than Mr. Kirwan to be imitated for wiſhing to introduce EPSOM and GLAUBER.

'VOLALKALI has been already taken notice of; and for TARTARIN I refer to a letter from a correſpondent in Nicholſon's Journal. FULIGINATED is ſo extraordinary a term, that I cannot allow myſelf to offer any reflections upon the ſubject.

'Mr. Kirwan ſays, that OXIDE in our language naturally expreſſes the HIDE OF AN OX; and that in pronunciation

pronunciation they cannot be diſtinguiſhed. I have never met any perſon who has been thus miſtaken. There is a want of aſpiration in the ſecond ſyllable of OXIDE that muſt always diſtinguiſh it, unleſs in a very provincial mouth. From the ridicule that particular dialects may confer, no word, indeed, can be exempt; and the North Briton may as well object to CAUSTIC, becauſe his common pronunciation is COWSTICK, as a Weſt Briton to the word OXIDE, on account of the aſpirated ſound which he gives the ſecond ſyllable. But, in the uſual mode of ſpeaking, there is no danger to be apprehended from the miſtakes that might ariſe from nomenclature of this kind.

'Upon the whole, Mr. Kirwan ſeems to be convinced that there are certain advantages attending methodical nomenclature, but he cannot bring himſelf to adopt it altogether. He is ſo fully impreſſed with a dread that the works of Stahl, Geoffroy, Duhamel, Macquer, Scheele, and Bergman, will not be underſtood, that he would reject whatever might tend to render the language in which they have written obſolete. It is very true, that we ſhould be much diſſatisfied with whatever could accelerate the extinction of writings which have conferred ſuch advantages upon the ſcience. In the works of the author before us, we have a proof how much we are diſſatisfied with whatever tends to render the ſenſe of a valuable writer obſcure. The terms which participate in the fault we cannot hear pronounced with patience. What recompenſe of clearneſs or perſpicuity can FULIGINATED, BARO-SELENITE, SYLVIAN, GLAUBER, STRONTHIAN-LIME WATER, SATURNINE SOLUTION, ACIDO-FULIGINATED CALX, &c. ever beſtow upon us, if they obſcure a ſingle ſentence of the *Docimaſtic Eſſays*, or of the *Eſſay on the Analyſis of Mineral Waters?* Mr. Kirwan has ſet too fierce a dragon to guard his golden apples. He is the only perſon who can attempt to remove it. There is want-

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ing but this one effort more to render his triumph over prejudice almost unexampled in the annals of philosophy.

The following remarks occur on the orthography of the term oxygen and its derivatives. 'OXIGEN, OXIGENE, OXYGENE, for OXYGEN. This word is derived from the Greek οξυς and γενομαι; U is represented in modern languages by Y. The French go so far as to call the latter the GREEK I. As to the omission of the E at the end of the last syllable, I am not quite so satisfied. I shall expose my doubts in speaking of another termination.

'The same observations apply to HIDROGEN, and HIDROGENE, for HYDROGEN.

'OXID, OXYDE, OXYD, are improper for OXIDE. This word is derived from οξυς and ειδος. It is therefore oxide: the last syllable of the former word being omitted, the ε of the second syllable is suppressed; but, as Dr. Pearson properly observes, might have been allowed to remain.'

The system of chemical signs is pretty fully treated of, and their utility pointed out. But we have already gone to a sufficient length in our extracts, and have succeeded, we trust, in exciting the curiosity of our readers with regard to this ingenious work; and to do this was our chief aim.

ART. LXIX. *Cases of Cancer, with Observations on the Use of Carbonate of Lime in that Disease.* By EDWARD KENTISH, *M.D., Author of the Essays on Burns.* 8vo, 48 pages, price 1s. London, 1802. MAWMAN.

WE perfectly agree with the author in his preliminary remark, that in no instance has the unwearied attention of the greatest abilities been so little

little rewarded as in attempting to obviate the fatal progreſs of open ulcerated cancer affecting the female breaſts: we fear we muſt add, too, that the maxim holds no leſs true at the preſent moment, in ſpite of the exertions of the ingenious author of the eſſay here given to the public.

Two caſes are detailed, ſuppoſed by the author to be of a cancerous nature, in one of which a perfect cure was obtained; in the other, conſiderable relief. The latter, however, at length terminated fatally, after a treatment of three months.

The firſt caſe is thus deſcribed.—'Mrs. Brown, aged thirty-four (formerly Miſs Elizabeth Kempſter), has been married three years. Previous to that period, ſhe lived fourteen years with the preſent Lady Fauconberg, as her maid. She ſays, about five years ago, ſhe perceived a ſmall tumor in her right breaſt, about the ſize of a hazel nut; but, as it gave her no pain, ſhe was not uneaſy about it, nor did ſhe make it known, or apply any thing to it. After her marriage the regiment went to Scotland; where, from changing quarters, and lodging in a damp room, ſhe was ſeverely afflicted with the rheumatiſm. About ſix months ago her right breaſt began to ſwell, and very ſhortly after the left; they both enlarged very rapidly, and had ſevere lancinating pains, with a burning ſenſation in them. About a month ago the right breaſt opened, and ſhe applied a bread and milk poultice to it, until a few days ago, when Dr. Ramſay had directed her to apply the carrot cataplaſm.

'The above is the deſcription of the caſe previous to its falling under my cognizance. The appearances at my firſt viſit were as follow:—the body of both breaſts was firmly attached by inflammation to the pectoral muſcles of each ſide. The whole chain of lymphatics in each axilla were ſtudded with tumors, ſo buried and blended with the brachial veſſels, as to render the ſeparation of them impoſſible, even by the moſt dexterous operator. The right breaſt preſented

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an ulcerated ſurface, about three inches and a half one way, and an inch and a half the other, through which protruded an excreſcence of the ſize and ſhape of half a pickled walnut, ſituated about an inch from the areola, on its ſuperior and exterior part. The papillæ of each were much depreſſed, and there was an ex-ulceration round that of the left. The left breaſt was attached to the ſkin in two places, which carried the appearance of ſpeedily becoming in the ſtate of the right. The patient appeared delicate in her general health, and had frequently hot and cold fits during the day. Until this period, from the time of her arriving at the age of puberty, ſhe had always been regular in her periodical changes. From the fairneſs of her complexion, the delicacy of her ſkin, and the affection of the lymphatic ſyſtem, there can be no doubt in ranking her in the claſs of ſcrofulous habits.

'The above is the ſtate in which I found her, with her previous deſcription of the diſeaſe. I ſhall now proceed to narrate the progreſs of her complaint, from that period, to its ultimate termination in what was beyond my moſt ſanguine expectations, namely, a PERFECT CICATRIX.

'The excreſcence, which was formed by ſeveral of the glands of which the whole mammary gland is compoſed, came away, and left a deep ugly ulcer, ſecreting a thin fœtid ichor, which corroded the living fibres of the adjoining ſkin and cellular membrane, of which the adjacent parts are compoſed, forming that peculiar and malignant ſtate of ſore termed CANCER, and which hitherto has reſiſted all ſurgical and medical treatment. The remaining glands of the congeries turned out of their beds one after another; and at the end of about a month the whole had come away, and left that particular deep and unequal-ſurfaced wound peculiar to cancer, the interſtitial pieces of adipoſe membrane, aſſuming the mulberry-like excreſcences ſo characteriſtic of this ſore, as univerſally deſcribed by all accurate ſurgical writers.

'A fre-

'A frequent hæmorrhage from the ſmall nouriſhing arteries took place. This ranks it among what the people term bleeding-cancers. During this ſloughing ſtage, ſhe complained of a good deal of pain; but the ſenſation of burning or ſcalding was more troubleſome than any lancinating pains. The left breaſt during this period was alſo much ſwelled, and a thin ichorous diſcharge or oozing from around the nipple threatened the ſame ſcene as had taken place in the right. But the diſcharge of the ſore of the right breaſt becoming more bland, the pain of the left breaſt gradually ceaſed with that of the right; the diſcharge inſenſibly became more puriform; and at the end of the ſecond month I had the extreme ſatisfaction of perceiving NEW CUTICLE forming down the perpendicular ſides of this terrific ulcer. Such a mixture of beauty and uglineſs is only capable of being conceived by a medical artiſt; or at leaſt he only is capable of judging of my feelings during ſuch a proceſs—UNIQUE in my practice and obſervation. The progreſs of cicatrization proceeded all round the circumference to the centre, nor did it ceaſe until it had completed a cure. The part remained like an inverted cone, or rather like the crater of a volcano.'

The other patient was fifty-four years of age. The complaint came on gradually; the nipple was retracted; and the mamma adhered to the ſubjacent ſubſtance. An alterative courſe of medicines was preſcribed, 'in order to try the efforts of the abſorbent veſſels on the part:' the tepid bath was alſo employed. The effect of theſe was, to palliate the ſymptoms only. The author then endeavoured to reduce it to the ſame ſtate as the former caſe; and for this purpoſe applied a ſtrong cauſtic upon the tumor, large enough to produce an eſchar, to enable him to act on the diſeaſed part to the bottom, as far as its attachment to the pectoral muſcle. 'This was very ſlow in ſeparating. In about a month the eſchar

came

came off, the cauſtic having very effectually gone through the inveſting integuments. The wound looked healthy and well round the edges. In the center there remained a firm fibrous eſchar about the ſize of a ſhilling, and of a duſky yellow colour. Round the edges of this I applied the cauſtic powder, with an armed probe, upon lint; which in about a fortnight more brought me to the bottom. At the end of ſix weeks the whole ſurface of the wound looked healthy; the pus was laudable; the ſkinning proceſs was beginning from the bottom of the wound, which was upon the pectoral muſcle, and aſcended up the ſide towards the ſuperior part of the ſore. For a fortnight the appearances were daily more gratifying.

'At this period nothing could exceed the pleaſure I received from the progreſs of the caſe. The new ſkin forming from the bottom, to the ſize of a finger nail, with the ſame beautiful plum bloom as in Mrs. B's caſe, gave me hopes that the power of overcoming the deadly effects of cancerous action was at length diſcovered. The wound was firm and healthy, and every cancerous appearance had vaniſhed. After ſuch flattering proſpects, I ſhall not attempt to relate what I felt in the ſubſequent part of the treatment. The ſudden vaniſhing of ſuch well-founded hopes produced ſenſations in an ardent mind which it is eaſier to conceive than to deſcribe.

'From this time the wound became ſtationary. In about a week more, the upper part next the clavicle appeared more irritable than the other parts of the ſore; the lymphatic veſſels paſſing over the clavicle became thickened and corded, ſo as eaſily to be traced by the touch, both on the neck, towards the head, and in the axilla down the arm. In a ſhort time after this appearance of the affection of the lymphatic ſyſtem, the limb began to ſwell, commencing at the ends of the fingers, and gradually aſcending up to the ſhoulder, and the arm became very large

large and unwieldy.' In ſhort, the patient ſunk in about three months, worn out with the uſual ſymptoms of pain, hectic fever, and conſequent emaciation.

The treatment employed in thoſe caſes divides itſelf into general and local. The former conſiſted of alteratives (i. e. mild mercurials), with the vapour bath. The local treatment is thus deſcribed. 'The deep foul ulcer which preſented itſelf, when the mammary glands were thrown off, left a very conſiderable void. This was filled up to the level of the adjoining cuticle with very fine levigated and prepared creta. The fœtor of the diſcharge became leſs; the matter was alſo of a better conſiſtence, and in ſmaller quantity. In clearing away the incruſted edges of the ſore with a ſpatula, after having taken away ſeveral coatings, I had the extreme pleaſure of perceiving the ſhelly pellicle forming upon the cellular membrane, at an acute angle with the cuticle. The wound was dreſſed once a day; and at the end of a month I firſt began to obſerve this appearance. From ſuch an effort I became extremely anxious to ſecond the endeavours of nature. Some funguſſes which appeared to obſtruct this proceſs yielded to reiterated applications of alumen uſtum, over which the creta, as uſual, was applied. There ſtill remained ſome points where the ulcers continued rebellious, notwithſtanding the application of the alumen. To give them a new ſurface, which I was in hopes I ſhould be enabled to cicatrize, I applied, by means of a probe armed with lint, and moiſtened, ſome of Plunket's powder, made according to the recipe in the Pharmacopeia Chirurgica. By this means I was enabled juſt to touch the points of the ſore, which appeared to me to require it. I afterwards put on the powdered creta as before. The arſenical powder prevented the growth of fungus.'

'When the glands in Mrs. Brown's caſe had come away, and left the deep ulcer already deſcribed, I made

made uſe of Mr. Baynton's method of ſtraps of plaſter, with a view of bringing the edges nearer in contact. I have ſince thought that I was more indebted to this mode than I had at firſt ſuppoſed. I believe it prevented the thickening of the edges, and kept up the balance of the abſorbent veſſels; by which means the ſecretion was leſſened, and the ſhelling by the uſe of creta facilitated. In the caſe of Fairbridge, as it is related in page 18, the irritation of the lymphatic veſſels running over the clavicle, and communicating up the neck and down the arm, was conſiderably increaſed by, if it did not ariſe from, the eryſipelatous inflammation around the ſore. The ſwelling of the hand and arm are ſymptoms not noticed by any author I have met with, except in a paper in the ſixth volume of the Medical and Phyſical Journal, by that attentive and eminent ſurgeon, Mr. Simmons, of Mancheſter. His account of the ſympathy of the hand and breaſt is ſo ſimilar to what I obſerved in my patient, that, when I read the one, I find it an exact deſcription of the other. I ſhould wiſh to draw the attention of practitioners to this ſymptom; for, as it has happened in theſe two caſes, I ſhould ſuppoſe it would appear in medical writings more frequently, were it attentively recorded.'

Such are the caſes, and ſuch the treatment, from which the ſanguine author deduces his concluſion of a probable remedy having been found for cancer. Of the firſt of the caſes we have no heſitation in ſaying, that, to us, it appears to poſſeſs no trait of genuine cancer. Neither the age of the patient, her habit of body, nor the appearances preſent, as here deſcribed, warrant the referring the diſeaſe to ſuch a ſource. The latter caſe ſeems, indeed, to have the uſual characters of cancer; and the termination was alſo the uſual one. The terms *unity of life*, *unity of action*, *torpor and partial death of parts*, *ſhelly pellicle* (new ſkin), &c. &c. have too much of hypotheſis in them to

to afford any illuſtration in point of doctrine; and they throw a ſuſpicion, even, over facts themſelves, which ſeldom fail to be warped by preconceived opinions.

Art. LXX. Gottfried Christian Reich, *Med. et Chirurg. Doct. et Profeſſor, &c., on Fever, and its Treatment in general. Publiſhed, by Command of the King of Pruſſia, by the Higher College of Medicine and Health of Berlin*, 1800. *Tranſlated from the German by* Charles Henry Parry. *To which are added a Preface by the Tranſlator, and an Appendix by* Caleb Hillier Parry, *M.D., one of the Phyſicians to the Bath General Hoſpital, &c.* 8vo, 102 pages, price 3s. 6d. London, 1801. Cadell and Davies.

THE pretended diſcovery of two remedies, by the uſe of which danger might be removed, as well in the ſmall-pox as in all other acute diſeaſes, and that in the ſhorteſt ſpace of time; ſanctioned, too, by a royal committee of four of the moſt eminent phyſicians in Germany, ſpecially appointed to inquire into the merits of the pretenſion; and, laſtly, the beſtowing of a penſion for life on the author of the diſcovery by his Pruſſian Majeſty, as a compenſation for the publication of the ſecret, are all circumſtances calculated to raiſe the curioſity of the medical world to no moderate pitch: yet, with all theſe claims to our attention, we confeſs we ſhould have been diſpoſed to paſs by the preſent work with at moſt but a ſlight notice, had it not come recommended by the name of a practitioner of no mean repute in our own country. This being the caſe, however, we ſhall proceed to examine the great diſcovery of the author, and the proceſs of reaſoning by which he was led to make it. It will not be amiſs to premiſe, from the preface, a few words reſpecting the author himſelf, and the proceedings

which took place with regard to the remedies in queſtion.

Dr. Reich, it ſeems, is a profeſſor of medicine at Erlang, a Pruſſian univerſity in Franconia. The firſt hint of his diſcovery was given in the appendix to a pamphlet publiſhed by him in the year 1799, in which he attributes it to his elaborate inveſtigation of the murrain among cattle, and the application to this diſeaſe of the Mitchillian theory of the yellow fever; to an accurate examination of that apparently ſtrange theory itſelf, and of the ſyſtems of Hufeland, Reil, and Brown; to a careful inquiry into the cauſes of fevers uſually called bilious and putrid; and to the failure of various experiments for the cure of thoſe diſeaſes according to the methods of the old humoral pathology. While, however, he alleges the ſucceſsful exhibition of his remedies in forty caſes, he not only avoids giving the ſmalleſt hint of their nature, but declares it as his reſolution to keep them a profound ſecret till he ſhall be aſſured of a ſufficient recompenſe for his labours.

This addreſs naturally drew the attention of various orders of men, and the author was frequently ſolicited to communicate his ſecret, for the benefit of ſociety at large; and it is not ſurpriſing that his refuſal to do this drew on him the charges of charlatanery and want of philanthropy; charges which he repelled as well as he was able. However, as he candidly offered to prove the truth of his aſſertions in any public hoſpital, in ſuch caſes of fever as are unattended with any organic læſion, and reſted his title to a reward on the event, he received, at length, an order from the King of Pruſſia to go to Berlin; the King declaring it his intention to reward him, ſhould his theory and remedies ſtand the teſt of examination. For this purpoſe a committee was formed, conſiſting of Drs. Selle, Fritze, Richter, and Formey, and experiments were inſtituted, under their inſpection, at the Hoſpital La Charité, at Berlin. In the ſpace of about four

four weeks, Dr. Reich treated here twenty-eight patients, of whom twenty-three recovered; three, refuſing to take the medicines, remained uncured, and two others died. Of theſe, one was a beggar, on the fifth day of the relapſe of a nervous fever; and the other a conſumptive patient, with a ſudden ulceration of the lungs.

Upon this, the committee made ſo favourable a report, that the author's ſecret was purchaſed for a penſion of about 100*l.* ſterling for life, with remainder of half that ſum to his widow; to which were added the privilege of reading lectures, and practiſing in Berlin, without the uſual examinations. The committee ſtate, "that, in conſequence of the want of malignant epidemic diſeaſes among the twenty-eight patients treated by profeſſor Reich, they do not think themſelves enabled completely to decide as to the merits of the propoſed remedy;" and "from the caſes of thoſe that died, as well as from many others out of the Hoſpital which in part terminated fatally, and in part could only be ſaved by the uſe of other remedies, it follows, at leaſt," they obſerve, "that the aſſertion, that in fevers of all kinds danger may be removed by it in a few hours, is not yet fully proved."—Indeed, it would be difficult to ſay what is fully proved, according to this report, to entitle the author to rate his claims ſo highly; for it only ſtates in favour of the remedies, that they are capable of relieving the ſymptoms of febrile complaints, particularly in the malignant diſeaſes of children, as ſmall-pox; and that they are ſtrongly recommended by their ſimplicity and cheapneſs.——But it is high time to proceed to the body of the work, that we may become acquainted with the valuable remedies in queſtion, and the reaſoning, if it can be ſo called, which led to their diſcovery, or rather adoption; for their uſe is by no means new in Britiſh practice, though, certainly, more limited than is here recommended. In a word, this invaluable ſecret is the muriatic acid; or, inſtead

of this, any other acid or ſubſtance containing oxygen, the imparting which principle to the ſyſtem is the grand deſideratum in the cure of fevers of every deſcription.

The work commences with a number of aphoriſms, deſigned to prove that all the functions and actions of the living body muſt be conſidered as an uninterrupted ſeries of animo-chemical proceſſes, by which the various changes obſerved in it are brought about. But as we find it impoſſible to do juſtice to the author's opinions in the abſtract, we ſhall allow him to ſpeak in his own words.

"Theſe animo-chemical proceſſes, or changes of mixture, are the reſult of the conſtant re-action of powers, or principles oppoſed to each other; without which nothing which exiſts, or is coming into exiſtence, can be imagined. It is well known that theſe animo-chemical proceſſes are very different. The circumſtances on which theſe differences depend conſiſt in the continual addition, change, and ſeparation of heterogeneous ſubſtances; in their relative proportions as to quantity and quality; in the difference of the ſingle organs in which thoſe changes take place, and in the mechanical or formal change of thoſe organs, which cannot happen without a change of the ſubſtances contained in them. From the reciprocal action of theſe oppoſed principles is produced the phænomenon of life. The life of the human body is, therefore, a continual tendency of heterogeneous matter towards homogeneity; at which point, however, it cannot arrive, on account of the continual addition of new heterogeneous matter; or, in other words, it is a perpetual circular motion, produced by the conflict of adverſe principles. It cannot exiſt as motion without this conflict of oppoſite powers; and powers cannot exhibit themſelves, without the ſubſtratum of organized matter. Powers, therefore, conſtitute the nature of matter; and matter is only power

conſidered

conſidered in an objective view; while, on the other hand, power is only matter conſidered in a ſubjective view. Organic powers, and organic bodies, are, therefore, one and the ſame, conſidered only in different points of view. Organiſm *(organiſmus)* ſubſiſts by its organic powers; which is the ſame thing as if we ſhould ſay, that it ſubſiſts by itſelf—that it is the product of its organic qualities, of the actions of its innate powers. As this product of organic qualities, organiſm, is a chemical product, ſo alſo its qualities or actions muſt be of a chemical kind; that is, they muſt be chemically determined. In no other view can we conceive of vital power, excitability, ſenſibility, irritability, the power of production, and whatever other powers have been attached to organiſm, as ſubſtantial eſſences." (§ 2, 3, 4)

"The two principles of life, therefore, are oxygen and azote; the former derived from the atmoſphere by the lungs; the latter furniſhed by the aliment taken into the body, and every thing which diſturbs the general proportions of theſe, relatively both to themſelves and to the ſimple and compounded matter exiſting in the body itſelf, by means of which is produced the variety of principles neceſſary to life; whatever, I ſay, diſturbs theſe proportions, and thereby occaſions that fermentation which I have called anti-natural, excites ſuch ſymptoms as are peculiar to fever" (§ 35). Theſe ſymptoms, the author afterwards obſerves, are produced either by an abſolute or relative, local or general, diminution of oxygen, and which may be occaſioned both by external and internal cauſes. Amongſt the former may be reckoned, beſides miaſmata, and the noxious ingredients in the atmoſphere in general, the exanthematic poiſons.

"The proximate cauſe of all fevers lies, therefore, in a defective reception, or the anti-natural application, of oxygen; or in the exceſſive accumulation and developement of azot, hydrogen, carbon, ſulphur, phoſphorus, or any of the other ingredients of

the human body, which are conſidered as ſimple; or in the various poſſible anti-natural combinations, binary, ternary, quaternary, quinquenary, &c. of theſe ſubſtances, either with each other, or with thoſe which modify them, and which are conveyed to us from without under the names of caloric, matter of light, magnetic and electric matter, &c." To the variety of theſe combinations is attributed the variety of the ſymptoms and appearances which occur in different caſes of fever, and which have given riſe to a number of ſpecific denominations (§ 43).

" As long as organiſm has not loſt the power of reuniting this bond, and reſtoring the right proportion; that is, as long as the poſſibility of reſtoring the general juſt proportions is not loſt by the deſtruction or unfitneſs of the ſingle organs neceſſary for the preſervation of theſe proportions; and the animo-chemical proceſſes have not approached too nearly the tranſition to the dead-chemical or phyſical proceſſes, every fever will be certainly and radically removed by reſtoring the defective oxygen in ſuch a manner as that no viſcus neceſſary to life ſhall be thereby endangered. Oxygen, therefore, muſt be the only ſure remedy againſt fever; which, however different in its origin, in its nature remains one and the ſame, becauſe this diſeaſed ſtate always proceeds from an abſolute or relative want of oxygen. Although in the latter caſe, or its relative want, there may be preſent in the body even a greater quantity than would be in itſelf neceſſary to preſerve the equilibrium, yet it is to be conſidered as not ſufficient for the attainment of this end, becauſe it is chemically latent, in conſequence of particular outward circumſtances, in one or more ſubſtances capable of oxydation, and forms with them half-acid or oxyded kinds of gas, which, under theſe circumſtances, cannot be again decompoſed into their conſtituent parts, and muſt therefore operate as noxious or exciting agents. The general characters which belong to oxygen, namely, that all other earthly ſubſtances,

ſtances, whether diſtinguiſhed by this or that name, whether ſimple or compounded, ſhew a continual tendency to unite themſelves with it; that, preferably to all other ſubſtances, it really enters into this connection with them; that, conſequently, inaſmuch as it does this, it muſt be oppoſed to all others; and that it enters into combuſtion with all others, without being itſelf combuſtible—theſe characters ſerve as the moſt inconteſtible proofs that oxygen really acts that part, which, in obedience to the voice of Nature herſelf, I have here aſſigned it." (§46, 47)

Such being the nature of fever, and the indication for its cure, the author proceeds to inquire into the means of fulfilling this. As we cannot exhibit oxygen by itſelf, thoſe ſubſtances muſt be employed which have undergone the moſt complete combuſtion with it, and in which, conſequently, it is moſt purely and ſimply latent: theſe are, he obſerves, acids, of which the mineral deſerve the preference. Theſe are to be adminiſtered in ſuch quantities as are neceſſary for the reſtoration of the equilibrium of principles in the body, and which is to be judged of by the ceſſation of the febrile ſymptoms. The author prefers the muriatic acid to all others, becauſe it is leſs diſguſting to the patient, and more volatile, and prone to unite itſelf with other ſubſtances. This acid is directed to be given in mixture with any common medicine, from one drachm to half an ounce, in half a pint of the mixture; the doſe from one to two table-ſpoonfuls, or more, every hour or two; and it may be diluted as may be requiſite. In caſes of inſtant danger, one or two drachms of the acid may be given at once. If the hyper-oxygenated muriatic acid be employed, which, however, is ſaid to be leſs efficacious than the ſimple acid, it ſhould be given in very large doſes, as from one to two ounces at a doſe, once or twice in an hour. The author himſelf once took, he ſays, within four hours, a whole quart bottle full; and ſeveral of

his patients have taken, in the ſame ſpace of time, twelve ounces or more: the only obvious occurrence which followed its uſe, was, two or three watery evacuations.

The author does not deny the utility aſſigned to the other anti-febrile remedies commonly adminiſtered, but he endeavours to explain their effects on his own theory; obſerving that they all of them contain oxygen in one form or other, free or latent; and even thoſe of apparently a contrary nature, as the volatile alkali, he ſuppoſes may operate by attaching themſelves to ſome of the other principles in the body, ſetting the oxygen with which thoſe principles were previouſly combined at liberty. This is certainly a very liberal conceſſion on the part of the author.

It is ſcarcely neceſſary to enter more minutely into the ſubject than we have done. Thoſe who are beſt acquainted with the animal œconomy will know how to appreciate the hypotheſes here advanced, whilſt they will not overlook the practical advantage to be drawn from them. The acids may poſſibly be better remedies in fever than we have hitherto eſteemed them; or they may have been employed on too confined a ſcale: yet it is impoſſible not to remark, that the evidence adduced in their favour is very far from concluſive. Whatever the ſucceſs of the common treatment of fevers may be in Germany, where the humoral pathology ſtill, in a good meaſure, ſtands its ground; and however favourable comparatively the reſult of the practice now recommended may have appeared to German phyſicians, the proportion of recoveries, in ſuch fevers as are here deſcribed, will not, we imagine, ſtrike a Britiſh practitioner with ſurprize.

The appendix, as appears from the title page, contains ſome remarks by Dr. Parry, with a detail of two caſes of idiopathic fever, where the muriatic acid was freely adminiſtered. They both terminated favourably;

ably; but it is difficult to ſay, from the duration and deſcription of the ſymptoms, whether any peculiarly good effects were attributable to the remedy; nor does Dr. Parry himſelf venture to draw ſuch a concluſion. He obſerves, that, as long ago as the year 1773, the muriatic acid was highly recommended by our countryman, Sir William Fordyce, to be given internally in thoſe fevers which are called putrid or malignant; and to be applied externally in the form of liniment or gargle to the ſloughs in the throat which often accompany ſuch fevers. But he adviſed it in doſes of only five drops, mixed with two ounces of decoction of Peruvian bark*. In a ſubſequent publication, which appeared in the year 1790, in form of a letter to Sir John Sinclair, bart., "Concerning the Virtues of the Muriatic Acid," he expreſsly recommends that medicine as the beſt remedy "in all our putrid diſeaſes of the worſt kinds;" "in petechial, camp, and jail diſtempers, as well as the malignant ſore throat, ſo frequently fatal in this country;" and afterwards in the ſmall-pox and plague. In this letter the author acknowledges himſelf indebted for the muriatic gargle to Sir William Duncan; and quotes a pamphlet on the external and internal uſe of this acid, publiſhed in the year 1664, by Conſtantine Rhodocanacides, a Greek empiric, who calls himſelf Chemiſt to King Charles the Second, and who derives his theoretical preſumption of its extraordinary power from the univerſality and approved value of common ſalt. He recommends the acid mixed with food and drink to the amount, if neceſſary, of one hundred drops in the twenty-four hours, as a preventive and remedy for the plague, and as a general antiſeptic; and publiſhes, at the ſame time, ſeveral "Certificates of the great benefit that had been received from it." To this ſource Sir William Fordyce confeſſes himſelf indebted for the firſt hint re-

* New Inquiry into the Cauſes, &c. of Putrid and Inflammatory Fevers.

ſpecting

ſpecting the internal uſe of the muriatic acid in putrid diſeaſes; and he enumerates ſome caſes of that kind, in which he attributes the cure chiefly to that acid.

Dr. P. obſerves further, that, ſeventeen years ago, he himſelf employed the muriatic acid in the form of glyſter, mixed with nitrate of ſoda, apparently with very good effects in ſeveral caſes of typhus: but as the adminiſtration of it in theſe inſtances aroſe merely from a chemical miſtake, the practice was not continued.

ART. LXXI. *A Collection of Papers, intended to promote an Inſtitution for the Cure and Prevention of infectious Fevers in Newcaſtle and other populous Towns. Together with the Communications of the moſt eminent Phyſicians relative to the Safety and Importance of annexing Fever Wards to the Newcaſtle and other Infirmaries. By* JOHN CLARK, *M.D.* 12mo, 239 pages, price 3s. Newcaſtle, 1802.

THE eſtabliſhment of houſes for the excluſive reception of infectious diſeaſes may juſtly be reckoned amongſt the greateſt improvements of modern times, and is the reſult of a more accurate obſervation and inveſtigation of the laws which influence the ſpreading of contagion. The ſpeedy removal of the poor from their own habitations, when under the affliction of infectious maladies, promiſes, if not to deſtroy altogether the germ of the evil, at leaſt to deprive it of the greater part of its power, and thus dry up one copious ſource of mortality amongſt mankind. The good effects already experienced from eſtabliſhments of this ſort, and the very limited ſphere of action of contagion, evinced by innumerable late obſervations, have ſuggeſted the ſafety and propriety of appropriating a part of hoſpitals and infirmaries to the reception excluſively of fever-patients: experience, indeed, ſeems

ſeems to have fully ſanctioned the practice. The example of the Cheſter, Liverpool, Mancheſter, and other hoſpitals, to which fever-wards have been annexed, is a ſufficient proof of the very limited action of contagion, and the little danger accruing to the other patients from the vicinity of thoſe affected with fever, provided the proper and ordinary precautions with reſpect to ſeparation and ventilation be ſufficiently enforced. The notoriety of theſe facts induced the majority of medical officers of the Newcaſtle Infirmary to recommend to the patrons of that inſtitution the adoption of a ſimilar plan: and means (it ſeems) were actually taken to carry the reſolution into effect. An unexpected oppoſition, however, on the part of ſome of the medical officers and their friends, who appear to have apprehended conſiderable danger from it to the reſt of the Infirmary, by the probable communication of contagion from the fever-wards, has, for the preſent at leaſt, fruſtrated the ſcheme altogether. The volume before us is a collection of the various papers, pro and con, that have been circulated on the occaſion, and contains, beſides, the teſtimony of a great number of the moſt eminent practitioners in the kingdom in favour of the abſolute ſafety of the meaſure propoſed.

It may, however, we think, be fairly queſtioned, how far it is warrantable to fix, with ſo much preciſion as has been lately attempted, the limits and range of action of contagious miaſmata. The memorable inſtances of the Black Aſſize at Oxford, and the ſeſſions at the Old Bailey in the year 1750, and which, by the by, each party has here quoted in favour of its particular opinions, ſhew that we cannot, in all caſes, limit the action of contagion to a few feet, or even a few yards; and that our knowledge of the ſubject is by no means ſufficiently preciſe and determinate to ſuperſede the neceſſity of conſiderable precaution. At the Old Bailey ſeſſions in 1750, near one hundred priſoners were tried, who were all, during the ſitting of the court, either placed at the bar, or confined together

gether in two ſmall rooms which opened into the court. When they were brought into court, the windows oppoſite to the bench, where the judges ſat, were thrown open: the people on the left of the court, to which ſide the wind blew, were infected with the jail fever, and above forty died of it; amongſt whom were the lord mayor, two of the judges, one of the aldermen, and ſeveral inferior officers of the court. It is remarkable, that the lord chief juſtice and the recorder, who ſat on the lord mayor's right hand, eſcaped; as did the London jury, who ſat on the ſame ſide of the court; whilſt of the Middleſex jury, who were placed oppoſite to them, many caught the fever, and died. At the Oxford aſſizes, mentioned above, in 1577, the effluvia ariſing from the priſoners, who were not themſelves ill, infected a great part of the court with a peſtilential fever, of which upwards of three hundred people died.

Theſe inſtances ſhew that infectious effluvia may be conveyed in an active ſtate to the diſtance of at leaſt ſeveral yards; and we have no facts to prove decidedly when they ceaſe to be noxious. Hence the neceſſity for conſiderable precaution, which, to be carried far enough, ſhould perhaps be carried farther than may be really neceſſary.

ART. LXXII. *The Anatomy of the Brain, explained in a Series of Engravings. By* CHARLES BELL, *Fellow of the Royal College of Surgeons of Edinburgh.* 4to, pages, price 2 guineas. London, 1802. ROBINSONS.

TWELVE plates are here given, illuſtrative of the ſtructure of the brain and its particular parts, and accompanied with appropriate explanations. The talents of the author in repreſentations of this kind are too well known to require here a particular commendation.

tion. We ſhall only briefly obſerve, that his labours on the preſent occaſion will, we have no doubt, tend to facilitate the acquiſition of an intricate and difficult branch of anatomical knowledge.

In an appendix, Mr. Bell endeavours to prove, and we think with ſucceſs, by a reference to their writings, that the older anatomiſts had a more accurate knowledge of the nature of the communication between the different ventricles of the brain, than Dr. Monro, the preſent celebrated profeſſor in the Edinburgh ſchool, ſeems willing to allow.

ART. LXXIII. *Obſervations on Pulmonary Conſumption, or an Eſſay on the Lichen Icelandicus, conſidered both as an Aliment and a Medicine in that Diſorder, illuſtrated by a coloured Engraving. By* J. B. REGNAULT, *late Phyſician to the Military Hoſpitals and Forces of France.* 8vo, 82 pages, price 4s. London, 1802. DULAU and Co.

THE *lichen Icelandicus* has been for ſome years in great repute among practitioners on the Continent, as a remedy in pulmonary complaints, and as a reſtorative in *tabes dorſalis* and the like diſeaſes of exhauſtion. Its ſenſible properties, however, point it out as a more important article in the *materia dietetica* than the *materia medica*, it being purely mucilaginous, and that in a very high degree. Indeed, it is uſed as an article of food very commonly in Iceland; and a Ruſſian has lately obtained a patent for making bread of it. A conſiderable number of caſes of phthiſis are here adduced, and thoſe ſaid to be ſelected from many more which terminated favourably, where its uſe completely effected a cure. The author recommends that a jelly be formed, by boiling ſix ounces of the lichen in as many pounds of ſpring water, for an hour, or more; then evaporating the decoction,

coction, with the addition of ſix ounces of refined ſugar, to the conſiſtence of a ſyrup or jelly. This is to be taken in the quantity of three or four ounces or more daily. Beſides this, it is adviſed to be taken with chocolate, in preference to any other ſpecies of food.

From the ſenſible qualities of this ſubſtance, above enumerated, and it is not pretended that it poſſeſſes any more powerful medicinal ones, it is not difficult to predict, that, in this country, it will not be found to anſwer the high expectations entertained of it by the author and ſome others on the Continent. At the ſame time, its employment will, perhaps, lead to ſome uſeful concluſions with reſpect to the moſt advantageous regimen in caſes of pulmonary conſumption; a point at preſent by no means ſatisfactorily determined.

ART. LXXIV. *The Medical and Phyſical Journal*, Nos. 47 and 48, *for December* 1802, *and January* 1803. PHILLIPS. London.

OF the original articles requiring notice, in the preſent numbers of the *Journal*, the firſt is 'An Account of Surgical Inſtruments, lately invented by *Thomas Clark*, M.D.'—This writer is laudably employed in obſerving the imperfections of many of the modern inſtruments of ſurgery, and in ſuggeſting ſuch alterations as he conceives to be material improvements of them. The inſtruments here particularly recommended are, one for the enlargement of gun-ſhot wounds, throughout their whole courſe, particularly deep ones: another for extracting bullets, or an improvement of the forceps uſually employed for that purpoſe: an inſtrument for removing ſtrictures in the urethra: another for removing ſubſtances lodged in the

the œſophagus: and, laſtly, a tourniquet for the tongue, to prevent loſs of blood in operations on that organ. To underſtand the improvements here ſuggeſted would require an inſpection of the plates; and as we do not learn that any of them have been actually put in practice, we may as well wait for the report of the practical ſurgeon on them, before being more particular.

A caſe is related by Mr. *Benjamin Hutchinſon*, of Southwell, Nottinghamſhire, of a large tumour, termed ſteatomatous, extirpated with ſucceſs from the perinæum, and which weighed four pounds and a half when removed. The contents of the tumour were of a ſemi-fluid conſiſtence, and give occaſion to Mr. H. to remark, that writers improperly deſcribe ſteatomatous tumours as being always of a firm conſiſtence; and he quotes the preſent inſtance as an exception. But Mr. H., ſo well read in medical hiſtory, might have known, that writers would not have called ſuch a tumour a ſteatome; for they invariably employ different terms to expreſs the different degrees of conſiſtency in ſuch tumours: e. g. ſteatoma, atheroma, and meliceris.

Some judicious and candid remarks next occur on the ſubject of the yellow fever, as it has been called, by Dr. John Harris, a phyſician practiſing in the Iſland of Jamaica. This gentleman remarks on the impropriety of the term *yellow fever*, as applied to the diſeaſe in queſtion, as the majority of caſes exhibit no ſuch colour in the ſkin. The chief purpoſe of the paper is to recommend mercury, both as a remedy and a prophylactic; and it confirms, in great meaſure, the teſtimony of Drs. Chiſholm and Lempriere reſpecting its uſe. Although, however, this remedy be allowed to be the beſt we are yet acquainted with, it is nevertheleſs, according to the ſtatement here given, far leſs efficacious than were to be wiſhed. Indeed the evidence, both with regard to the curative and the preventive powers of mercury, is far from deciſive;

ciſive; yet it deſerves great attention, as it has been ſufficient to ſatisfy, with a ſingle exception, all the practitioners of the Iſland of Jamaica, many of them, doubtleſs, men of great candour, and accurate obſervers. The exception alluded to is, Dr. Grant, who, in an 'Eſſay on the Yellow Fever,' ſays, "although I have been called in to attend many under ſuch circumſtances, not one ſurvived, and they became more victims to the mercury than even to the fever*." The teſtimony of Dr. Mac-Larty and of Dr. Burke are given unequivocally in favour of the uſe of mercury; and they all agree in condemning the employment of blood-letting as a general remedy in the malignant fever. As a prophylactic, in conjunction with mercury, it appeared to be ſerviceable, when moderately employed.

Two caſes are related by Mr. *Maurice*, ſurgeon of Marlborough, of the co-exiſtence of the meaſles and vaccine diſeaſe by inoculation, each going regularly through its courſe, without appearing to be at all influenced by the other.

The following remarks on the uſe of the *acetite* of zinc in gonorrhœa, as coming from a diſtinguiſhed chemiſt, Mr. *William Henry*, of Mancheſter, will, no doubt, prove intereſting. After obſerving, that experience has convinced him of its ſuperiority over the *ſulphate* of zinc (white vitriol) for forming an injection in this diſeaſe, he remarks, that the acetite of zinc may be prepared in any of the following modes:

'1. Let zinc, which may be bought at the braziers, under the name of ſpelter, be melted in an iron ladle, and poured from a conſiderable height into a veſſel of cold water. It will thus be minutely divided, or granulated; and, if the operation has been unſkilfully ma-

* The author refers Dr. G. to two patients by name, both of whom he (Dr. G.) had occaſion to ſee, and to preſcribe for, under the circumſtances he mentions, and both of whom recovered.!!

naged,

naged, may be divided ſtill farther by a pair of ſtrong ſhears. Let the fineſt parts of this granulated metal be added to a quantity of diſtilled vinegar; or, what is ſtill better, of the acidum acetoſum of the London Pharmacopœia, diluted with ſix or eight parts of water. Shake or ſtir the materials together frequently; and, when the acid has loſt all its ſourneſs, which will happen in a few days, let the liquor be ſlowly evaporated. On cooling, it will ſhoot into cryſtals of a ſimilar colour to thoſe of ſugar of lead; or into nearly white ones, if the acidum acetoſum has been the ſolvent.

'2. For metallic zinc, the white ſublimed oxide (flores zinci) may be ſubſtituted, uſing the ſame ſolvents as before; and the chemiſt will find it advantageous to employ the gritty part, which is leſs fit for uſe as an internal medicine.

'3. To a ſolution of white vitriol (zincum vitriolatum) in ſix or eight times its weight of water, add a ſolution of the acetite of lead (ceruſſa acetata) in twice its weight of water, as long as any precipitation enſues, or a little longer, in order to enſure the complete decompoſition of the white vitriol. Throw the whole upon a linen ſtrainer, and waſh off the ſoluble part by repeated affuſions of diſtilled water; then evaporate, and cryſtallize as before.

'The cryſtals of acetite of zinc may be obtained by very cautious and ſlow evaporation, of a diſtinct and regular form; but, for medicinal uſe, this nicety is quite unneceſſary.

'For the purpoſe of an injection, I generally uſe eight or ten grains, diſſolved in four or ſix ounces of water, or, what is much better, in the ſame quantity of a thin mucilage of quince ſeeds, or of decoction of linſeed, or of barley. The ſtrength may be increaſed or diminiſhed as may be found expedient; but ſuch a proportion as excites a ſlight ſmarting I conſider as rather favourable to the cure.

'A ſolution of the ſalt, in ſmaller proportion than that above aſſigned, in roſe-water, forms an excellent

eye-waſh. The medicine may alſo be exhibited internally (as my father has frequently done) in all caſes in which the calcined zinc has hitherto been employed, and with more certain efficacy. In the doſe of from five to ten grains it affords a ſafe emetic, which operates ſpeedily.'

The uſe of zincum vitriolatum combined with opium is recommended by Mr. *Elijah Impey*, ſurgeon in the navy, as a tonic and aſtringent in dyſentery, after the teneſmus, griping, and diſcharge of mucus mixed with blood, together with ſcybalæ, have been removed by laxatives and mucilaginous drinks.

An inſtance of diviſion of the ſymphiſis pubis is related, as performed in a caſe of laborious parturition by a ſurgeon in France; but of which we ſhall only remark, that no Britiſh ſurgeon, under ſuch circumſtances, would have thought of performing it.

Mr. *Davies*, of Piccadilly, mentions his having cured a patient affected with tinea capitis of ten years ſtanding, and which had reſiſted a variety of treatment, by the continued application of the unguentum picis, with the addition of a ſmall quantity of hydrarg. muriat.; preſcribing internally ſmall doſes of the ſulph. antimon. and calomel, night and morning.

No. 48 commences with ſome intereſting obſervations, by Dr. *Currie*, of Philadelphia, on the ſubject of the yellow fever, which again made its appearance in that city during the ſummer and autumn of laſt year. There were the moſt inconteſtible proofs, Dr. C. obſerves, that the fever was introduced by a veſſel that arrived from St. Domingo, and on board of which ſeveral perſons died during the voyage. In conſequence of a general alarm amongſt the citizens, owing to which three-fourths of the inhabitants removed from the neighbourhood where the diſeaſe firſt appeared, its progreſs was greatly checked, the whole number of ſick amounting only to 584; but of this number no leſs than 298 died, ſo that no diminution of the malignity or danger of the diſeaſe ſeems yet to have taken

taken place. The remedies at this time employed differed very little from thoſe formerly in uſe; yet a better eſtimate of their powers may be formed from the preſent relation. Mercury was generally employed, both internally and externally, for the purpoſe of exciting ſalivation as ſpeedily as poſſible; but ſeldom with ſucceſs, Dr. Currie obſerves, unleſs employed at the very commencement of the diſeaſe, and ſo conducted as to affect the mouth before the dangerous ſymptoms of the ſecond ſtage had time to make their appearance. When employed later, and when diſordered ſtomach, reſtleſſneſs, oppreſſion, deep ſighing, and a countenance denoting great miſery, had come on, it conſtantly aggravated the diſeaſe, and hurried on the fatal ſymptom of black vomiting. This opinion, it ſhould be remarked, is oppoſite to that entertained by Dr. Chiſholm, who thinks no period too late for the exhibition of mercury. The appearance of ſalivation does not always enſure a favourable termination; for a few inſtances occurred of the contrary, after ſalivation had plentifully come on.

The only remedy here recommended that has any claim to novelty is lime-water, given for the purpoſe of relieving the violent affection of the ſtomach, and which it ſeems in ſome meaſure to have effected: it was given along with milk. In caſes where the diſeaſe began with ſtrong action of the arteries, ſevere pains in the head and limbs, with little or no ſickneſs at ſtomach; bleeding, purging with active medicines, and the ſtrict obſervance of every part of the antiphlogiſtic regimen, generally occaſioned a partial ſolution of the fever on the third, and a complete ſolution on the fifth day from the attack.

Some letters on the ſame ſubject are next inſerted, from Dr. *Patterſon* of Londonderry, and Dr. *Miller* of New York, one of the editors of the *Medical Repoſitory;* the former aſſerting, the latter as ſtrenuouſly denying, the contagious nature of the diſeaſe: but we have ſo often had occaſion to advert to this point, that it would be ſuperfluous to dwell on it here.

Mr. *Simmons*, of Manchester, gives a strong testimony in favour of the mode of dressing by adhesive plaisters, as recommended by Mr. *Baynton;* but almost all surgeons, we imagine, are now well convinced of the great advantages of this plan.

Some cases are given of *Gout*, by Dr. *Kinglake*, where great relief was experienced from the local application of cold water, frequently renewed, and where at the same time cordial and stimulating remedies were internally exhibited. This mode of practice, as we learn from Dr. Heberden and others, is not new, nor is there a want of testimony in its favour; yet it appears, after trial, to have gone completely into disuse. What are its real merits is yet, perhaps, undetermined: the investigation of this question is of no small importance.

An account of the progress of the vaccine inoculation on the continent is given by Dr. *Friese*, of Breslaw, of which it is sufficient to observe, that no circumstances have hitherto arisen in those parts unfavourable to the new practice.—A number of cases is next given by Dr. *Grapengiesser*, of Berlin, where the galvanic electricity was employed for the cure of several diseases, and with various success.

ART. LXXV. *References to the Bones, for the Use of Anatomical Schools. By* BENJAMIN B. SIMONS, *M.D.* 8vo, price 5s. London. 1801. LONGMAN and Co.

THE plan here recommended, and intended to be adopted in an anatomical class which the author proposes to institute, consists in selecting a set of bones, the outlines and processes of which are distinctly and strongly marked; annexing to the different processes, foramina, &c. numbers corresponding with others prefixed to their respective references, and delivering them, thus labelled, to the student; a method of teaching that appears to have both novelty and utility to recommend it.

MISCEL-

MISCELLANEOUS.

§ 39. *The following Note ſhews that the Vaccine Virus can retain its Activity for a long Period, and through a great Variety of Climate.*

"DR. Waterhouſe preſents his compliments to Mr. *Wachſel*, and returns him many thanks for his polite attention in ſupplying him, through the hands of the worthy Dr. *Lettſom*, with the vaccine virus, which he had the ſatisfaction to find perfectly active at *three thouſand miles diſtance from its ſource*. Dr. W. would thank Mr. Wachſel for a continuance of his favours when a favourable opportunity occurs in the ſpring, leſt any unforeſeen accident ſhould deprive him of his preſent ſtock. Dr. Waterhouſe ſends one of his pamphlets for Mr. W.'s acceptance.

"Cambridge, America, Nov. 5, 1801."

The parcels of matter ſent to Dr. Waterhouſe were of the following dates.

No. 1. was taken on the...10th day of vaccination.
No. 2.....12th do.
No. 3.....13th do.

Hence we learn, that both *before* and *after* the period of the areola, as well as during its continuance, the virus preſerves its activity.

§ 40.

A new Inſtitution for the general extenſion of the vaccine inoculation has juſt been formed in London, and met with the moſt liberal ſupport. At a late dinner of the friends of the eſtabliſhment the following toaſts were given.

"The promulgator of the vaccine inoculation, Dr. JENNER."

"Dr. PEARSON; with due acknowledgments of his ſervices in eſtabliſhing the new inoculation by the evidence of practice."

Dr. Pearſon took occaſion to inform the company of many particulars concerning the conduct and objects of the inſtitution, which could not be noticed in the *Report*; and gave a moſt pleaſing view of the advantages which individuals had already derived from the cow-pock, and, at the ſame time, anticipated the momentous conſequences of univerſal inoculation throughout the united kingdom, in two reſpects:

1ſt. In preſerving from 30,000 to 40,000 lives annually; and,

2dly. By EXTERMINATING, in a few years, the SMALL-POX.

To accompliſh theſe views, he contended that laws for compelling the vaccine inoculation of every ſubject within a certain period after birth were eſſentially neceſſary, as well as the immediate PROHIBITION of the inoculation of the ſmall-pox: that the latter meaſure alone would be totally inadequate: and he maintained, that it was not more an infringement of the liberty of the ſubject to render the cow-pock inoculation univerſal, than to prohibit, as already propoſed, the variolous.

He obſerved, that the number loſt by inoculation for the ſmall-pox was not an object of national importance, as it amounted to no more than from *ſix* to *nine* per thouſand; but when it was conſidered, that one could hardly ſay there was more danger from the inoculation of the cow-pock than from a puncture with a clean lancet, and that the ſymptoms were uſually very much ſlighter than in the ſmall pox inoculation; that by univerſal inoculation for the cow-pock the ſmall-pox muſt be certainly extinguiſhed, and which end, it was obvious, might be obtained by even an univerſal variolous inoculation; it remained only to inſtitute the cow-pock inoculation univerſally, as propoſed.

Dr. P. combated the objections which have been made to increaſing population, by ſhewing that the reſources of agriculture and the production of animal food were not underſtood; that the augmentation in the population of France required, as a meaſure of ſafety, attention to the means of

increaſing

increaſing this kind of national wealth; that the mere waſte in the feeding of animals, and in preparing food for man, if avoided, would ſuffice for the ſupport of a conſiderably greater than the preſent population.

Dr. P. illuſtrated his argument in favour of vaccine inoculation by obſerving, that the going through the ſmall-pox in the caſual way, by the inoculation of it, and by exciting the cow-pock in place of the ſmall-pox, might be compared to croſſing a river in three different ways:

1ſt. By ſwimming or wading through it; by which 97 out of a thouſand periſhed.

2nd. By going over in boats; in which from 6 to 9 per thouſand were loſt: and,

3dly. By means of a bridge, in the paſſage of which no one periſhed, except from ſuch caſualties as might operate in other ſituations.

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§ 41. *Queries addreſſed to Dr. Walker on the Subject of his Letter on the Vaccine Practice in the Mediterranean.*

A correſpondent, who has read the letter of Dr. *Walker*, in the laſt number of the *Med. and Phyſ. Jour.*, on the ſubject of his miſſion to the Mediterranean, deſires us to inſert the following *queries*. The important nature of the facts to which they allude, both as regarding the reputation of Dr. W. and his colleague Dr. Marſhall, and more immediately as affecting the character of the practice, which their excurſion was intended to propagate, will, we ſhould imagine, impoſe on Dr. W. a neceſſity of giving a candid anſwer to theſe inquiries.

"Did there not occur at Minorca certain circumſtances which induced Drs. *M.* and *W.* to ſuppoſe that the matter they brought with them had been deteriorated or decompoſed in its paſſage, ſo as to be rendered incapable of producing the true vaccine diſeaſe; and did not Dr. M. return to Gibraltar for the purpoſe of procuring a freſh ſupply of matter from England?

" Did the matter with which Dr. M. returned to Minorca, and which was there employed, and afterwards at Malta, come directly from England; or was it taken ſecondarily at Gibraltar?

" What number of perſons received the vaccine infection at Minorca, whether inhabitants of the iſland, or troops in garriſon there; and what was the proportion of *ſpurious* caſes, as they were termed, which occurred? Has the ſmall-pox made its appearance in the iſland of Minorca ſince the vaccine inoculations were performed?

" How was the inefficacy of the *matter* diſcovered; was it from any peculiar appearances of the inoculated part; or rather, was not the term *ſpurious* adopted in conſequence of circumſtances which occurred *ſubſequently*, viz. its being found inadequate to the prevention of future variolous action?

" At Malta, how many, either of the garriſon or of the inhabitants, were inoculated with the vaccine virus? Of ſuch, how many were afterwards inoculated with variolous matter, and what was the reſult? Has the natural ſmall-pox appeared in the town of *La Valette* ſince the experiments of Drs. *M.* and *W.*; and has it come to their knowledge that *any* of the ſubjects of their experiments were afterwards attacked and died with the natural ſmall-pox, though they had previouſly reſiſted variolous inoculation?

" Did it appear that the local inflammation on the inoculated parts was aggravated by that tendency to eryſipelatous inflammation which the climate appears to generate?"

The queries above ſtated ſeem to *imply* that ſome important facts have been withheld from the public in the ſtatement which has been given: it remains for Dr. W. to explain the matter.

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§ 42. *On the Preparation of the Red Oxide of Mercury (Hydrargyrus Nitratus Ruber, or Red Precipitate).*

M. *Fiſcher* has pointed out a ready and œconomical mode of preparing the red oxide of mercury, which deſerves notice,

tice. In the common method of forming this ſubſtance there is a conſiderable waſte of nitric acid, all that is not employed in oxidating the metal being driven off and loſt during the evaporation to dryneſs and ſubſequent heating of the nitrate. In the proceſs here recommended, any given portion of quickſilver is to be diſſolved in a ſufficient quantity of the nitric acid, and the ſolution evaporated to dryneſs: with the ſalt thus obtained a further portion of quickſilver, equal, or nearly ſo, to the quantity at firſt employed, is to be triturated, with the addition of water enough to form a paſte, till the quickſilver entirely diſappears. The moiſt maſs is then to be gently dried, and expoſed to a gradual heat in a retort. In a few minutes it aſſumes a red colour, and, when cooled, is obtained in the ſtate of fine powder.

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§ 43. *Experiments on the Separation of Light and Heat by Refraction. By Sir* H. C. Englefield, *Bart.* (From Journals of the Royal Inſtitution. No. 10.)

The very intereſting experiments of Dr. Herſchell on this ſubject* having been called in queſtion, and an objection made to the mode in which they were conducted, Sir H. Englefield was induced to repeat them with an apparatus totally different in its arrangement from that employed by Dr. H. The mode of proceeding adopted is thus deſcribed.

'As I had nothing to do with light, it was not neceſſary to darken the room; and as I wiſhed to accumulate as large a portion of ſolar heat as poſſible, I placed the priſm in an open window, inſtead of admitting a beam through an aperture in a ſhutter, as is the uſual practice. The priſm I uſed is a very good one; and it was lent to me for this purpoſe by Mr. Walker, of Conduit Street. It is three inches long, and equilateral, each ſide being 1.15 inch broad.

'It was ſupported by an horizontal arm, projecting from a pole like that of a fire ſcreen. The arm could be adjuſted to

* For a full account of theſe, ſee page 1, et ſeq. of our laſt volume.

any

any height by a ſcrew; and the priſm was likewiſe capable of being turned on its axis to any required poſition.

'The coloured ſpectrum was thrown on a very good lens, of four inches in diameter, and about 22 inches focal length. This lens formed part of a machine well known, and uſed for viewing prints: it ſtands on a foot adjuſtable in any direction, and to any height; and the mounting being of wood, and merely ſufficient to ſupport the lens, ſcarcely any heat can be accumulated in any part of it. The whole lens, as well as its mounting, was covered with a thick white paſteboard ſcreen, in which was cut a ſlit of 3 inches long, and half an inch wide: this ſlit was over the centre of the lens; and through it any one of the colours required was admitted on the lens, while all the reſt of the ſpectrum was totally excluded. A light wooden arm, of two feet long, projected at right angles from the lower part of the mounting of the lens. This arm carried a ſmall ſcreen of poliſhed card, which received the image formed in the focus of the lens. This was found neceſſary, in order to find with certainty where to place the thermometer. When the focal diſtance was found, the ſcreen was moved back about a diameter of the bulb of the thermometer uſed, which was then held by hand in the focus of the lens, which was done with great eaſe and certainty, as nothing more was neceſſary than to fix the eye on the card ſcreen, and keep the ball of the thermometer in the centre of the luminous image. The whiteneſs and poliſh of the ſcreen totally precluded any accumulation of heat in it; nor, indeed, would ſuch accumulation have been of any detriment to the experiments had it exiſted; for, as it muſt have been entirely owing to the ray under examination, it would have done nothing more than increaſe the effect of it on the thermometer.

'The thermometers uſed were mercurial, and very ſenſible. The ſcales were ivory tubes, embracing the ſtem, and graduated within. The ball of the inſtrument was therefore unconnected with any mounting; and no falſe heat could poſſibly affect it. The balls were moſtly blackened with Indian ink,

ink, carefully laid on; but ſome were uſed naked, and one covered with white water-colour paint.

'The lens, with its apparatus, was placed about three feet from the priſm; and, as the ſun was pretty high in the greater part of the experiments, and the deſcending ſpectrum was in general uſed, the floor under the ſtand of the lens was in ſhade, from the wall below the window, and had been ſo all the day, as the window at which moſt of the experiments were made fronted the ſouth.

'Some part of this detail might ſeem ſuperfluous, had not ſuch ſtreſs been laid on the ſuppoſed accumulation of heat in Dr. Herſchell's experiments, that it was neceſſary to obviate any objection on that head; or to ſhow, at leaſt, the utter improbability of any cauſe of that nature having affected the reſults of theſe experiments.

'I now proceed to relate the experiments themſelves, which I ſhall tranſcribe from the original notes made at the moment.

'April 6, 1801.

'The apparatus being diſpoſed as above deſcribed, the coloured rays of the deſcending ſpectrum of the priſm were ſucceſſively thrown on the ſlit in the ſcreen, covering the lens; and the thermometer with a blackened ball, placed in the focus of the lens, roſe as follows:

'In the blue in 3′, from 55° to 56°.

'Green in 3′, from 54° to 58°.

'Yellow in 3′, from 56° to 62°.

'Full red in $2\frac{1}{2}'$, from 56° to 72°.

'In the confines of the red in $2\frac{1}{2}'$, from 58° to $73\frac{1}{2}°$.

'Quite out of viſible light in $2\frac{1}{2}'$, from 61° to 79°.

'Between each of the obſervations the thermometer was placed in the ſhade ſo long as to ſink it below the heat to which it had riſen in the preceding obſervation: of courſe, its riſe above that point could only be the effect of the ray to which it was now expoſed *. A thermometer placed con-

'* In all the experiments the thermometer was continued in the focus long after it had ceaſed to riſe; therefore the heats given are the greateſt effect of the ſeveral rays on the thermometer in each obſervation.

ſtantly

ſtantly in the ſhade near the apparatus ſcarcely varied during the experiments.

'April 17th, 11, A. M.

'Three thermometers, uſed afterwards in the experiments, were expoſed to the ſun's rays until they became ſtationary.

'The thermometer with

'Naked ball . . . . . $58\frac{1}{2}°$

'Whitened ball . . . . . $58\frac{1}{2}°$

'Blackened ball . . . . . 63°

'The apparatus being placed all as before, the blackened thermometer

'In full red ray in 3′, from 58° to 61°.

'In quite dark in 3′, from 59° to 64°.

'The whitened thermometer

'In full red ray in 3′, from 55° to 58°.

'In quite dark in 3′, from 58° to $58\frac{1}{2}°$.

'The blackened thermometer was now again placed in the quite dark, and roſe in 3′, from 58° to 61°.

'This is what I expected, as a thick ſmoky haze had come on ſince the experiments were begun, and increaſed much towards the end of them.

'April 18, 11, A. M. Sun clear. All the apparatus as before.

'In the confines of the red.

'Black thermometer in 3′, from 59° to 71°.

'White thermometer in 3′, from $57\frac{1}{2}°$ to $60\frac{1}{2}°$. Clouds came on, and put a ſtop to the experiments.

'April 19, $3\frac{1}{2}$, P. M. Sun clear.

'In the full red ray.

'Black thermometer in 3′, from 66° to 82°.

'White thermometer in 3′, from 66° to $69\frac{1}{2}°$.

'In the confines of the red.

'Black thermometer in 3′, from 67° to $79\frac{1}{2}°$. But thin ſtreaky clouds had come over the ſun.

'In quite dark, half an inch out of the red.

'Black thermometer in 3′, from 70° to 84°.

'When the thermometer was carried into the faint red light, it ſunk quickly, and roſe again as quickly when carried into the dark focus; but when carried into the dark on the other

ſide

ſide of the red light, it ſunk very rapidly, and did not appear to receive any heat at all. Thin clouds increaſed, and rendered the ſun's light too faint for farther experiments.

'April 20, from $10\frac{1}{2}$ to $11\frac{1}{2}$, A. M. Sun quite clear.

'Although it could not be ſuppoſed that effects of the refracted light could differ in the two ſpectra, yet, in order to aſcertain the fact, the horizontal ſpectrum was uſed in the ſubſequent experiments.

'The apparatus all the ſame as in the former.

'In the full red ray.

'Black thermometer in 3′, from 67° to $71\frac{1}{2}$°.

'Quite out of the ray.

'Black thermometer in 3′, from 68° to $77\frac{1}{2}$°.

'The ray was now ſo far removed from the ſlit in the ſcreen, that ſcarce any light was perceptible in the focus of the lens. The black thermometer was now placed near half an inch from the bound of the viſible light in the focus, and roſe in 3′, from 69° to $79\frac{1}{2}$°.

'The utmoſt edge of the priſmatic ſpectrum was now removed an eighth of an inch from the edge of the ſlit in the ſcreen; and no light was now viſible in the focus of the lens.

'Black thermometer in 3′, from 70° to 79°.

'Mr. Cary, optician, in the Strand, and Dr. Hunter, were preſent at theſe experiments; and repeatedly ſaw the thermometer in the ſecond experiment ſink when carried into the light, and riſe again when removed back into the dark. Dr. Hunter alſo received the focus on the palm of his hand, where the heat was ſenſibly felt; and, on ſhutting his eyes, and pointing with a long pen to where the heat was greateſt, he always touched his hand beyond the viſible light.

'As the red image has been continually mentioned in the courſe of the above recited experiments, it may not be improper to deſcribe it more particularly. The diameter of the red ſpot, formed by the ray in the focus of the lens, was juſt two-tenths of an inch in diameter, at right angles to the length of the ſpectrum, and well defined: in the direction of the

the ſpectrum it was elongated, as might be expected, and leſs well defined.

'When the whole viſible ſpectrum from the priſm was received on the ſcreen which covered the lens, and the utmoſt edge of the red rays was removed a full eighth of an inch from the edge of the ſlit in the ſcreen, there was ſtill a faint bluſh of red, of a ſemi-oval form, viſible when the focus of the lens was thrown on a white ſcreen; and it was in theſe circumſtances that the greateſt effect of heat was conſtantly produced on the thermometer, not by placing it in the red light, but out of it, in the axis of the lens.

'I have only to add, that, in the courſe of the month of June, 1802, I repeated moſt of theſe experiments with the ſame apparatus, in preſence of Mr. Davy, with the moſt complete ſucceſs: the ſun's altitude being greater, the effect of his rays was ſo great as to raiſe the thermometer in the inviſible ray to 98°, while the viſible red never raiſed it above 87°. At the ſuggeſtion of Mr. Davy, we tried ſeveral experiments with reſpect to the power of the ſeveral coloured rays in rendering Canton's phoſphorus luminous; and we found, without a poſſibility of doubt, that the blue rays poſſeſſed that power in a much higher degree than the red. There was great reaſon to ſuſpect that this power, like that of blackening the nitrate of ſilver, extended beyond the viſible blue ray; but our apparatus was not prepared for the more delicate part of theſe experiments, which are only mentioned with a view of exciting farther reſearches on this very intereſting ſubject, and of giving to Mr. Davy the credit due to him for having firſt thought of the experiment.'

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§ 44. *New Method recommended for the Relief of Strictures in the Urethra.* (Hartenkeil's Med. & Chir. Gaz., vol. 1.)

M. *Bruninghauſen,* a diſtinguiſhed German practitioner, recommends to the general adoption of ſurgeons a mode of treating ſtrictures in the urethra, which he has found ſucceſsful, and which has at leaſt the merit of ſimplicity, and of being

ing eaſily put in practice. It conſiſts in dilating the canal of the urethra by means of the urine itſelf. For this purpoſe, the patient, as often as he has occaſion to make water, muſt compreſs ſlightly with his fingers the canal, juſt behind the glans, ſo as to intercept the paſſage of the urine, making at the ſame time an effort to paſs it. Thus the whole urethra becomes diſtended, and conſequently more or leſs the ſtrictured part. By this means, ſays the author, in a little time, the ſame effect will be produced as by the action of bougies, without any of the inconveniencies that uſually attend theſe. In three inſtances of ſtricture M. *Bruninghauſen* ſucceeded completely in removing the diſeaſe by the means here recommended. That this ſimple practice, however, would generally ſucceed, we are much inclined to doubt. The ſound part of the canal, in theſe caſes, is much readier to yield than the contracted portion, and might be ſtimulated into ulceration by being ſo overſtretched. In caſes where the obſtruction is nearly complete, there is no want of diſtenſion of the ſound part of the canal, at leaſt behind the affected part, were that capable of overcoming the ſtricture.

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§ 45. *On the Poiſon of Arſenic, and its Antidotes.*

The obſervations and experiments of which we are about to give an account conſtituted the ſubject of a theſis, defended at the *Ecole de Medecine* at Paris, by Citizen *Renault*. They will no doubt be read with ſome intereſt, as of no ſmall importance in a practical point of view.

After ſome remarks on *antidotes*, or counter-poiſons in general, M. *Renault* treats of thoſe indicated and recommended by M. *Navier*, a phyſician at *Chalons*, in caſes of poiſon from arſenic. Theſe are, the *hydrogenated ſulphures of potaſh, lime*, and *iron*. M. *Navier* aſſerts, that theſe ſubſtances poſſeſs a certain and effectual power of arreſting the corroſive action of the oxide of arſenic. Some experiments, however, that were made by others led to a different concluſion; the author, therefore, determined to examine the matter by a new appeal to experiment.

His

His firſt care was, to prepare, himſelf, the different ſulphures recommended by Navier. It was not without ſurpriſe he found, that, although he followed with the moſt ſcrupulous exactneſs the proceſſes indicated by that chemiſt in order to obtain a ſulphure of iron ſoluble in water, it was impoſſible to ſucceed. It was uſeleſs, therefore, to employ a ſubſtance that was perfectly inſoluble, in his experiments on living animals. He had recourſe, therefore, to the hydrogenated ſulphures of potaſh and lime (alkaline and calcareous hepars). Theſe were diſſolved ſeparately in a determinate quantity of water, and to each was added a ſolution of the arſenious acid (common white arſenic).

Immediately on the mixture being made, a copious yellow precipitate took place. It might be preſumed, therefore, that the arſenious acid, by combining with the ſulphur, or rather with the ſulphurated hydrogen of the two ſulphures, had undergone a change in its qualities, ſo as to have its poiſonous property deſtroyed, or at leaſt ſenſibly weakened. But in order to acquire certainty in this point, the author compelled ſeveral dogs to ſwallow a certain portion of the mixtures mentioned above, but ſo that the quantity of arſenic contained in each doſe never exceeded two or three grains.

All the animals to which theſe mixtures were adminiſtered were affected in a very ſhort time with vomiting and conſiderable alvine dejections: and all of them, except two, died in the ſpace of 48 hours; ſome ſooner, ſome later. The two which ſurvived owed their ſafety, probably, to the rapidity with which they rejected, by vomit, nearly the whole of the poiſonous liquor; but they ſuffered enough to ſhew, that, although the liquid had remained but a very ſhort time in the ſtomach, it had nevertheleſs exerted a very ſenſible degree of action.

From theſe experiments it may be concluded that the hydrogenated ſulphures of potaſh and lime, although they have a decided action on the arſenious acid, nevertheleſs do not deſtroy its poiſonous property, and that they do not even weaken it; ſince the animals to which the mixtures were exhibited

hibited died in as ſhort a ſpace of time as if they had taken the pure arſenic itſelf.

Vinegar is another antidote that has been recommended to obviate the effects of arſenic; but the inſufficiency of this will be apparent, when we reflect that it has no action on arſenic at the ordinary temperature; that it diſſolves it only in a boiling ſtate; and that even in this caſe it affords a ſalt equally cauſtic with the arſenic itſelf.

The inefficacy of the hydro-ſulphures, and of vinegar, being thus proved, it remained to inquire, whether, amongſt the agents which poſſeſs an affinity to the acid of arſenic, any one could be found which had the property of readily combining with it, and, at the ſame time, of depriving it of its cauſticity. Theſe effects, the author imagined, might be derived from the ſulphurated hydrogen; and he determined to ſubmit it to trial accordingly.

It is to *Berthollet* that we owe the knowledge of the moſt eſſential properties of the ſulphurated hydrogen. He ſhewed us, that this ſubſtance was one of the re-agents which manifeſted the moſt prompt action on the metals and their oxides; that it reduced the greater number of theſe to the metallic ſtate; and, finally, that it was ſo very ſenſible in its effects, that it diſcovered, almoſt inſtantaneouſly, the ſmalleſt atoms of metal diffuſed in metallic ſolutions. M. *Fourcroy* likewiſe recommends the employment of ſulphurated hydrogen in caſes of poiſon by arſenic, and prefers it for this purpoſe to the hydro-ſulphures. M. *Renault*, therefore, made a number of experiments with this ſubſtance on living dogs, varying the doſes of the poiſon which he introduced into their ſtomachs: from theſe it appeared,

1. That, when the ſolution of arſenic that was exhibited had been during twelve hours mixed with water previouſly ſaturated with ſulphurated hydrogen gas, the animals were not affected with vomiting, but ſeemed merely to experience ſome degree of uneaſineſs, which ſoon went off.

2. That, when the doſe of the arſenic was increaſed, although it had previouſly been expoſed to the liquid ſulphurated hydrogen, the animals were affected with vomiting and

uneaſineſs; but after twenty-four hours they ſhewed a deſire to eat, and ſpeedily recovered themſelves.

3. That violent and frequently repeated vomitings and dejections took place in dogs, into the ſtomachs of which, inſtead of the ſolution of arſenic mixed with the liquid ſulphurated hydrogen, theſe liquids were injected ſeparately ſix minutes one after the other; on the following day, however, the animals appeared in good health.

4. That when, inſtead of the preceding mixture, they were made to ſwallow a mixture, prepared ſome hours previouſly, of dry arſenic and the liquid ſulphurated hydrogen, all the animals, except ſuch as had taken a very minute doſe indeed of the poiſon, ſuffered violent pain, and ſpeedily periſhed.

From theſe facts we may conclude with the author, that the ſolution of the arſenious acid forms with the ſulphurated hydrogen a compound which may be introduced with impunity into the ſtomach, and that in conſiderable doſes; provided always, that the mixture of theſe two ſubſtances has been made ſome hours previous; but that, if ſwallowed ſeparately, and after an interval of a few minutes only, the poiſonous effect of the arſenic is produced, without, however, proving abſolutely fatal.

Theſe facts likewiſe prove, that, although the liquid ſulphurated hydrogen may be advantageouſly employed in caſes where arſenic has been ſwallowed in a diſſolved ſtate, yet that the ſame benefit is not to be expected where the poiſon has been taken in the ſtate of powder. The difficult ſolubility of this ſubſtance, indeed, is likely in all caſes to operate againſt the effects of any counter-poiſon.

The author next endeavours to aſcertain whether arſenic in its metallic ſtate (regulus of arſenic) is equally poiſonous with its oxide (white arſenic); or whether any difference exiſts in the effects of theſe two ſubſtances. It is exceedingly difficult to procure and adminiſter the metal of arſenic totally

totally free from oxygen; but, from ſome experiments of *Bayen* and *Sage*, he is diſpoſed to conclude againſt the regulus poſſeſſing any poiſonous property. He contents himſelf with examining the effects on animals of an alloy of arſenic leſs oxidable than the arſenic itſelf. For this purpoſe he employed the *miſpickel*, which did not appear to poſſeſs any or but the ſlighteſt degree of poiſonous property.

The poiſonous quality of arſenic is not confined excluſively to the acid and the white and grey oxides of this metal; it is found, alſo, in its ſulphures, but with ſome exceptions, which the author is careful to notice. He quotes on this ſubject a paſſage from the works of *Hoffman* on poiſons; in which this celebrated phyſician aſſerts, poſitively, that we muſt not confound the native orpiment with the red and yellow arſenic prepared in the laboratories. The firſt is neither purgative nor emetic, nor otherwiſe injurious to animals; whilſt the two latter are ſpeedily fatal. In order to aſcertain the truth of this aſſertion of Hoffman, M. *Renault* made the following experiments.

1. He procured *native* yellow ſulphure of arſenic, and, having aſſured himſelf of its purity, he gave a dog about four drachms of it. The animal experienced no change in his ſtate of health, and continued to eat as in common. This experiment, when repeated on other dogs with ſtill larger doſes, gave conſtantly the ſame reſult.

2. He adminiſtered to a dog four grains only of *artificial* yellow ſulphure of arſenic. In a ſhort time the animal vomited and purged violently, and died in about five days.

3. Three grains of this ſulphure given to another dog acted in the ſame manner; the animal ſurviving only four hours longer than in the preceding caſe.

Thus is it proved that Hoffman was right in ſaying, that, though the *native* ſulphure of arſenic were not a poiſon, the ſame could not be aſſerted of the *artificial* ſulphure of this metal.

With reſpect to the cauſe of this difference in two ſubſtances ſuppoſed to be identical with each other, M. *Prouſt* proves, by direct experiments, that there exiſt really two ſorts of yellow ſulphure of arſenic, the one oxidated, the other not ſo. Nature preſents us with the latter of theſe; and it is, doubtleſs, becauſe the arſenic it contains is in a perfectly metallic ſtate that it is free from poiſonous properties; whilſt, in the artificial ſulphure, the metal being oxidated, neceſſarily acts on all the bodies it touches, and leaves traces of its corroſive quality.

When we attend to what takes place in moſt perſons, and the ſame in animals, poiſoned by arſenical preparations, we may obſerve, that the firſt ſymptoms that manifeſt themſelves are, violent vomitings or purgings. The author inquires, therefore, into the beſt means of counteracting theſe violent effects. Almoſt all poiſons, he obſerves, become fatal to man if they remain long in the ſtomach, and if he is unable to get rid of them by vomiting. Hence perſons who have taken poiſon mixed with a large quantity of food are leſs incommoded by it when ſickneſs and vomiting take place; for the poiſon being expelled along with the aliment, and not having had time to exert its full action on the coats of the ſtomach, makes but a ſlight impreſſion, and which readily diſappears.

The natural inference to be drawn from this fact is, that it is always proper to excite vomiting as quickly as poſſible in perſons who have ſwallowed arſenic; but the means of producing this are not indifferent: by employing irritating emetics, we ſhould add to the evil we meant to remedy. On this account, it has been propoſed to adminiſter oil in large quantity; but this alſo, the author thinks, is objectionable. In fact, it appears, from numerous trials, that when arſenic is given to animals combined with oil, butter, or other fatty ſubſtances, they are deſtroyed much more quickly than when it is given in an aqueous vehicle. The uſe of fat bodies ought, therefore, to be interdicted in the firſt moments in caſes of poiſon, and mucilaginous and gelatinous ſubſtances employed in their ſtead.

For

For this purpoſe, ſkimmed milk, infuſion of linſeed, decoction of marſh-mallows or rice, gelatinous broths, or even warm water, ſhould be plentifully adminiſtered, and as ſpeedily as poſſible after the accident. But an obſtacle here ſometimes ariſes. There are perſons ſo conſtituted, that they vomit with the greateſt difficulty. At other times, poiſons induce triſmus, or locked jaw; ſo that nothing can either be thrown into the ſtomach, or ejected from it. In theſe caſes, M. Renault propoſes having recourſe to a large tube of elaſtic gum, of ſuch a length that it may reach fully into the ſtomach; adapting to it the pipe of a ſyringe. With this inſtrument, he thinks, fluids may be injected by the mouth into the cavity of the ſtomach, and, after remaining there a ſufficient length of time, may be again withdrawn by the ſame inſtrument. The utility of this he has proved, he ſays, on animals.

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§ 46. *On the Nature of the Earth ſaid to be eaten by the Inhabitants of New Caledonia.*

We mentioned on a late occaſion* the account tranſmitted from M. *Humboldt*, from South America, reſpecting the earth eaten by the *Otomaquas* for three months, when the *Oronoquo* river is ſo high, that they can no longer procure turtle. Citizen *Labillardiere* has ſtated a fact equally ſingular, from an obſervation made in a part of the world conſiderably diſtant from that inhabited by the Otamagues; that the inhabitants of New Caledonia, when preſſed by hunger, eat a large quantity of greeniſh ſteatites, which is ſoft and friable. It may be eaſily imagined how the dreadful cuſtom of eating priſoners of war might have been introduced among a ſavage people, who are reduced to ſuch want as to be obliged to ſatisfy their hunger by diſtending their ſtomach and inteſtines with an earthy ſubſtance which has no alimentary quality.

Citizen Vauquelin, wiſhing to know the nature of this earth, and to diſcover if it contained any nutritive parts, has

* See page 185 of our laſt volume.

analyſed it by the uſual methods, from ſome ſpecimens which were ſent him by Labillardiere. This earth is ſoft to the touch, compoſed of ſmall fibres, which are eaſily ſeparated, and when ignited it loſes about $\frac{4}{100}$ of its weight. It is compoſed of 37 parts of pure magneſia, 36 of ſilex, 17 of oxyd, 3 or 4 of water, and 2 or 3 of lime and copper. It does not, therefore, contain any alimentary parts, and can only be conſidered as filling the ſtomach; a kind of mechanical expedient to ſuſpend the pains of hunger.

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§ 47. *On the Effects of Opium habitually uſed.* (*See* Aſiatic Annual Regiſter for the Year 1801.)

In this part of the world we are pretty well acquainted with the effects of opium when employed for the purpoſes of medicine; but thoſe which follow its habitual uſe we know but little of. In many countries, as *Turkey* for inſtance, it is taken with the ſame intentions as ardent ſpirits are ſo greedily ſwallowed with us, viz. to produce intoxication and a temporary oblivion of care. The *Chineſe* appear much addicted to the uſe of opium; and of ſo great a magnitude does the evil appear to the government of that country, that they have adopted the ſtricteſt precautions againſt its introduction into the empire. The following extracts from a public edict iſſued on the occaſion will ſhew this, and alſo ſerve to point out the ordinary effects produced by a continued and exceſſive uſe of this pernicious drug.

" Public edict, addreſſed by the Hoppo, or Receiver General of the Cuſtoms at *Canton*, for the information of the merchants appointed to trade with foreign nations."

" Whereas I have received advices from his excellency the Fooyen, ſetting forth, ' That the ſhips of foreign nations ' have long ſince been permitted to import at Wampou and ' Macao, in the province of Quantong, for the purpoſe of ' carrying on a free trade by the free interchange of thoſe ' commodities which were in demand on the one ſide, and ' ſuperfluous on the other.

' From this general rule the article of opium was excepted, ' a ſubſtance whoſe compoſition we are unacquainted with,

' but

'but which is of a violent and powerful nature, and poſſeſſes 'a fetid and odious flavour: being, however, remarkable at 'the ſame time for a quality of *exciting and raiſing the ſpirits*, 'it has been ſought after and purchaſed by perſons without 'fixed homes, or profeſſions, who, having prepared an ex-'tract from it, opened ſhops for this branch of traffic.

'The uſe of opium originally prevailed *only among va-'grants and diſreputable people*, who aſſociated together for 'the purpoſe of partaking of this ſubſtance; but it has ſince 'extended itſelf amongſt the members and deſcendants of 'reputable families, ſtudents, as well as officers of govern-'ment, who, infatuated in their attachment to this drug, 'make an habitual uſe of it.

'Their inducement on this occaſion appears to be, the 'power which this ſubſtance communicates to thoſe who 'partake of it, *of not cloſing their eyes for entire nights*, and 'ſpending them in the gratification of impure and ſenſual 'deſires, whereby their reſpective duties and occupations are 'neglected. When this habit becomes eſtabliſhed by frequent 'repetition, it gains an entire aſcendant; and the conſumer 'of opium is not only unable to forbear the daily uſe of it, 'but, on paſſing the accuſtomed hour, he is immediately 'ſeized with pains in the head, and a feveriſh heat; cannot 'refrain from tears, or command himſelf in any degree. For 'relief, therefore, from theſe painful ſymptoms, and to re-'gain his wonted health, he has neceſſarily recourſe to the 'ſame pernicious ſubſtance.

'When, at length, the gradual and progreſſive effects of 'this poiſon have pervaded the lungs and the whole bodily 'frame, the ſufferers, with the pale and ſickly hue of doves, 'or ſmall fluttering birds, are no longer within the reach of 'medical aſſiſtance: deſirous, *though in vain*, of quitting ſo 'dreadful a practice, they would willingly end it with their 'lives, by tearing out their entrails in deſpair.

'The extraordinary expence of this article is farther to be 'noticed, each mace weight of which, in the extract, is ex-'changed for eight or nine maces in money; and the con-

'ſtant uſe of it raiſes at the ſame time an *extraordinary ap-*
'*petite for other kinds of food,* which the fortunes of the
'bulk of the community are unable to ſatisfy, and are there-
'fore, in the courſe of a few years, wholly dilapidated and
'waſted away: of theſe, the infirm and weak periſh gradually
'from want and hunger, while the ſtrong and vigorous be-
'come thieves and robbers; the ruin of either being equally
'certain and inevitable.

'Others, again, among the deluded and misjudging peo-
'ple, from trifling cauſes or abſurd conceits, take the pre-
'mature reſolution of ſwallowing a decoction of opium in
'wine; thus ending their exiſtence by means of readier ac-
'ceſs than are the generality of vegetable ſubſtances eſteemed
'poiſonous and deſtructive to the human frame.

'The pernicious effects ariſing from the uſe of this ſub-
'ſtance were formerly confined to Fokin and Quantong,
'but have ſpread, in the courſe of time, through the other
'provinces of the empire, where the eagerneſs after the
'traffic and conſumption of this article have even exceeded
'that of the firſt introducers.'"—This diſguſting picture is fol-lowed by the decrees prohibiting, under the ſevereſt penal-ties, the importation of an article ſo deſtructive to human life: but theſe it is unneceſſary to notice. We have marked the moſt ſtriking of the remarks in italics; and which ſhew that its habitual uſe induces effects very different from thoſe which we obſerve in the ordinary medicinal adminiſtration of it.

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§ 48. *Of the Production and Varieties of the Aloe.* (From *Hiſtoire des Plantes Graſſes. Par* A. P. Decandolle.)

The hiſtory of a drug in ſuch general uſe as aloes is no unintereſting object of inquiry to the medical philoſopher. The *aloe* plant grows in general in a ſandy, ſtony, and very dry ſoil; it is cultivated in many countries, and amongſt others in Jamaica and Barbadoes, whence the greateſt part conſumed in this part of the world is procured. In the latter it is propagated by ſeed. A plantation raiſed in this manner

continues

continues productive for ſeven years, and the plants become uſeful at the concluſion of the firſt year. At Jamaica, they multiply the *aloe* by means of ſhoots, which ſpring from the ſides of the ſtock. At the end of two or three years they begin to collect the juice; and the duration of a plantation thus made is a dozen years, or even more. At the *Cape of Good Hope*, the *aloe* bears the name of *Goreboſh*, derived either from the river *Goree*, or from a ſlave called *Goree*, who revealed, it is ſaid, the place of its growth to a coloniſt of the family of *De Witt*, ſince which time the excluſive privilege of cultivating it has been ſecured to that family.

In order to collect the juice of the *aloe*, they cut off the leaves near the ſtalk, and then place them on each other like the hollow tiles with which they cover the roofs of houſes in ſome countries. The firſt leaf allows its juice to drain into a veſſel underneath, and, at the ſame time, ſerves as a channel to conduct the juice of the ſecond; and ſo on. When the juice has ceaſed to flow ſpontaneouſly, the leaves are preſſed between the hands to obtain ſtill more. This juice is of a greeniſh-yellow colour: it is collected in winter, as it is then moſt abundant.

At Jamaica, where the culture of the *aloe* is an object of importance, the labourers cut the leaves, and cauſe the juice to flow into veſſels adapted to the purpoſe: the firſt juice that runs off is of a ſuperior quality. When it has ceaſed to flow, the leaves are ſprinkled with water, which becomes charged with a ſecond juice, inferior to the firſt. When the juice is all collected, it is neceſſary to bring it into a proper conſiſtence: at Jamaica, it is evaporated in ſhallow wooden veſſels, till it becomes thick enough not to flow from the end of a ſtick. At Barbadoes, it is boiled for about five hours; and, when the ebullition is too ſtrong, a little lime-water is added: when the juice is ſufficiently thickened, it is put into moulds, and ſuffered to evaporate. It appears, that, ſince the time Brown was in Jamaica, a new method has been introduced of collecting the juice of the *aloe*, and which has been deſcribed by *Wright* (Lond. Med. Jour., 1787). The leaves are cut in pieces, and tied in bundles, or put into baſkets; theſe

theſe are then plunged into caldrons of boiling water for about ten minutes. Freſh parcels are plunged into the ſame water till the water becomes black; it is then drawn off by a cock at the bottom of the veſſel, and evaporated, frequently agitating it the while.

By theſe different proceſſes the aloes is obtained for the purpoſes of medicine. This juice was known to the antients, and much employed by their moſt celebrated phyſicians. The Latin proverb, *plus aloês quam mellis habet,* proves that this medicine was in very general uſe. *Dioſcorides* ſpeaks of two ſorts of aloes. *Celſus* adviſes to mix it with all other purgatives. For two centuries paſt, aloes has been in high repute with phyſicians. *Raymond Mindererus,* in his work entitled *Alvedarium Marocoſtinum,* printed in 1620, and *Marcquis,* in his Treatiſe, *De Aloe Morbifuga,* printed in 1633, attribute the moſt various and active powers to aloes in the greater number of diſorders.

There are various ſorts of aloes in uſe. 1ſt. The *ſuccotrine* aloes, of a red purpliſh colour, and when powdered, of a golden ſhining appearance: it has the odour of myrrh; is pellucid, and is called in the ſhops by the names of *Opium Thebaicum*[?], *Terebintha Venetæ*[?*], *Crocus Orientalis:* it contains, according to *Lewis,* one third of gummy matter; it is produced by the ſuccotrine aloe. *Aloe ſuccotrina, caule fruticoſa, foliis oblongo-enſiformibus, ſubmaculatis; margine corneo, albo, ſpinoſo; ſpinis rectis* (Decand. Succ., No. 85).

2d. *Hepatic* aloes, thus called from its colour approaching that of liver of ſulphur: it is deeper and leſs brilliant than the former; it is more compact, leſs pellucid, and of a more diſagreeable flavour, and contains only one-fourth of gummy matter.

3d. *Caballine* aloes, ſo called from being uſed only for horſes, is of a ſtill worſe quality; its odour is ſtrong and offenſive, and its colour deep; it is often intermixed with grains of ſand, and does not contain above a fixth of gummy matter. Theſe two laſt ſpecies are produced by the common aloe.

* Can M. Decandolle be correct here?

Aloe

Aloe vulgaris, foliis patulis, adſcendentibus, margine ſpinoſis; pedunculo ramoſo; ramis bracteâ duplici amplexis. (Decand. Succ., No. 27.)

A fourth, ſuperior to all the others, is produced at the Cape, and deſcribed by *Thunberg*.

Aloes poſſeſs in a high degree a purgative virtue. No one diſputes this when taken internally; and *Monro* has proved it poſſeſſes the ſame power when externally applied: in fact, he remarks, that, in caries, the patient is often purged when the tincture of aloes is applied to the wound. The purgative property of the aloes reſides in a gummy matter; and this is the reaſon that the ſuccotrine is the moſt purgative of all the ſpecies; this is the reaſon, likewiſe, why the aqueous extract of aloes purges more than the aloes itſelf.

This purgative is neither adapted to plethoric nor bilious habits, nor to pregnant women; nor eſpecially to perſons ſubject to hæmorrhagy. *Fallopius* obſerves, that, out of a hundred perſons purged with aloes, ninety were attacked with hæmorrhoids in conſequence. Aloes is employed to excite the menſtrual flux in women. It is ſaid, alſo, that, on account of its bitterneſs, it ſerves to deſtroy worms; and for this purpoſe it is often applied outwardly. But *Redi* aſſerts, that earth-worms live for 24 hours in a ſolution of ſuccotrine aloes, and for ſeveral days in earth mixed with aloes in powder. It is in general agreed, however, that aloes are vermifuge. Aloes may be kept for ten years or more. Its diſagreeable flavour is beſt covered or removed by vinegar.

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§ 49. *New Proceſs for preparing the Black Oxide of Iron (Æthiops Martialis). By* C. Cavezzali, *Apothecary to the Hoſpital at Lodi.*

The black oxide of iron, or martial æthiops, is uſually prepared by macerating for a length of time iron filings in diſtilled water, when the iron falls ſpontaneouſly into a black powder, which is afterwards ſeparated by waſhing and exſiccation. This proceſs, however, is tedious and imperfect, and much inferior, probably, to the method here recommended,

mended, which conſiſts in uſing only water enough to form the filings into a paſte, adding from time to time a freſh quantity to ſupply that loſt by decompoſition and evaporation. About the fifth day the maſs ſwells, and gives out hydrogene gas. When this kind of fermentation has ceaſed, and which is uſually about the 16th or 17th day, the maſs is repeatedly waſhed, to procure the finer part of the oxide thus formed. The reſidue is then dried and pulverized, and again waſhed, when a freſh quantity of oxide is obtained, leſs fine than the preceding. Laſtly, the remaining iron is again formed into a paſte, and, after the ſame length of time, waſhed as before. In this way the whole of the iron becomes converted into black oxide, and gains an increaſe of weight equal to about 35 per cent.

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§ 50. *Experiments and Obſervations on Vegetation, tending to prove that the Growth of Plants in the Light of the Sun does not, as is commonly believed, ameliorate the Quality of the Air. By* Dr. James Woodhouſe, Profeſſor of Chemiſtry in the Univerſity of Pennſylvania.

From experiments made on the ſeeds, leaves, &c. of a variety of plants, Dr. *Woodhouſe* ſeems to have proved, contrary to the general opinion, that growing vegetables do not in all caſes purify the air of the atmoſphere; and that, when they appear to afford oxygen gas, this change is effected by their devouring, for food, the carbon of the carbonic acid gas preſent in the air, leaving its oxygen in the form of pure air.

When ſeeds were made to germinate in atmoſpheric air, the oxygen was diminiſhed by uniting with the carbon furniſhed either by the cotyledons of the ſeed, by the ſoil, or by the decayed portion of the living leaves. Afterwards the air became more pure; and, laſtly, its oxygene was found to be totally abſorbed, when the plants died.

Plants growing in atmoſpheric air produced carbonic acid gas, and diminiſhed the purity of the air. When they were made

made to grow in oxygen gas, carbonic acid gas was in like manner produced.

When plants are confined for a time in atmoſpheric air, the decaying parts afford carbon, which unites with the oxygen of the air to form carbonic acid, which is again decompoſed. When the formation of carbonic acid is quicker than the plant can decompoſe it, the plant dies. The included plant will live longer when the ſoil contains but little organized remains, *i. e.* carbon, little change being then produced in the air.

When carbonic acid was added to atmoſpheric air, and living plants were introduced in the light, the carbonic acid diſappeared, whilſt the proportion of oxygen was augmented; but, after becoming more pure by this proceſs, carbonic acid was again afforded, when the light was excluded.

When leaves were immerſed in water containing carbonic acid, and expoſed to the light of the ſun, oxygen gas was given out, as was formerly proved by Dr. Prieſtley; but it does not follow from hence that plants render the air of the atmoſphere more pure: for, firſt, whenever oxygen has been obtained from vegetating plants, carbonic acid has always been preſent, but not without this; for it was found that the leaves of thirteen different plants, expoſed ſeparately in forty ounce meaſures of river-water, produced about ten drachms of air, the principal part of which was azotic; whilſt, when the ſame water was impregnated with carbonic acid, ſeventy-ſeven drachms of oxygen air, of a high degree of purity, were obtained.

Dr. Woodhouſe does not think, with many, that plants decompoſe water, abſorbing its hydrogen, and ſetting the oxygen, its other conſtituent part, at liberty; for, if the water be pure, there is no appearance whatever of oxygen produced.

Nor is it true that vegetables give out oxygen for the benefit of animals, the latter yielding azote in return to ſupply the vegetable food; for freſh leaves, when entirely freed from decaying parts, do not affect atmoſpheric air. But leaves that are in a decaying ſtate, and that however ſlightly, diminiſh

niſh the purity of atmoſpheric air both by day and by night.

It is not probable that plants ſecrete carbonic acid in the dark; for, as the quantity of the carbonic acid is always in proportion to the decayed parts, and to the temperature in which they are kept, it is more rational to aſcribe its generation to the carbon uniting with the oxygen of the air in which they are placed.

Fruits and leaves that are perfectly ſound and free from decay do not abſorb azote from a mixture of azote and atmoſpheric air; nor do they otherwiſe change it.

Not only is the quantity of carbonic acid floating in the atmoſphere inſufficient to afford the oxygen contained therein, but, on the contrary, vegetables even appear to deteriorate the purity of the atmoſphere by their decaying parts abſorbing a part of the oxygen.

Dr. Darwin ſuppoſed, that the air contained in the pods of vegetables ſerves to oxygenate the ſeed; but Dr. Woodhouſe found that that contained in the capſules of the *cardioſpermum halicabalum*, the *ſtaphylia trifoliata*, the *colutea arboreſcens*, and the *ſophora auſtralis*, was rather leſs pure than atmoſpheric air.

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§ 51. *On the Zoonic Acid.* By M. Thenard. (*Ann. de Chym. tom.* 43.)

Berthollet obſerved, ſeveral years ago, that, in the diſtillation of animal matters, a new acid, as he ſuppoſed, was formed, to which he gave the name of *Zoonic* (i. e. animal) *Acid*. The only properties he remarked in it were, 1ſt. Its poſſeſſing an odour ſimilar to roaſted meats; 2d. Its remaining liquid at ordinary temperatures; 3d. Its becoming volatile in a heat below that of boiling water; 4th. Its forming ſalts of eaſy ſolution with barytes, pot-aſh, ſoda, ſtrontian, lime, and ammoniac; 5th. Its precipitating the nitrate of lead and the acetite of quickſilver; 6th, and laſtly. Its ſpontaneous decompoſition by time, and its depoſiting carbon.

Although the properties which have been now mentioned ſeem to characterize it as a diſtinct ſpecies of acid, neverthe-

leſs

leſs the experiments of M. *Thenard,* detailed in the above work, leave no room to doubt that the *Zoonic* is, in fact, nothing more than the acetous acid holding in ſolution an animal matter that approaches nearly to the ſtate of oil. This it is which gives this acid the property of precipitating different metallic ſalts, and eſpecially thoſe of mercury and lead.

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§ 52. *Obſervations on the Black Colour of Bodies. By Dr.* Mitchill, *of New York.* (*N. Y. Med. Rep.*)

"As I was making ſome experiments the other day with a ſmall thermometer upon bodies of different colours expoſed to the rays of the ſun, then ſhining very bright, I was ſtruck with an appearance I had not ſo particularly noticed before on the ſurface of *black* bodies. As my thermometer was lying on the black hair-cloth bottom of a mahogany chair near the window, in the ſunſhine, I obſerved the white light or ſunbeam ſo refracted as to exhibit the priſmatic colours, and reflected, after refraction, plainly to the eye; while thoſe parts of the cloth which were not ſo brightly illuminated, or which were not expoſed to the direct rays of the ſun, appeared of the ordinary black colour. On moving theſe black or feebly illuminated parts of the hair-cloth into the ſunſhine, they likewiſe reflected priſmatic colours; and, on withdrawing them into the ſhade, the light was refracted and reflected too feebly to be diſtinguiſhed into colours, and they returned to their former blackneſs. The quickſilver of the thermometer, lying on the hair-cloth which ſo refracted the ſunbeams and reflected their priſmatic colours, had riſen to a height many degrees above the temperature of the parts, on which, by reaſon of feeble refraction in the ſhade, no colours were diſtinguiſhable by my eyes.

"Here, then, was a confirmation of the common experiment of heat accumulated in *black* bodies expoſed to the ſolar radiance. And there was more than that: there was evidence plainly ſubmitted to my ſenſe of ſeeing, that a certain black body did not abſorb the white or undecompoſed

rays

rays of light, but did decompoſe them in a conſiderable degree, and reflect coloured light of all the irideſcent hues to the organ of viſion.

"To know how far this quality of black horſe-hair correſponded with other black ſubſtances, I expoſed *black ſilk* to the ſunſhine, and ſaw the priſmatic colours plainly on its filaments. I then examined the *black briſtles* of ſwine, and beheld a ſimilar reflection of colours from their ſurfaces. Afterwards a *black dyed* hat was expoſed to the rays, and rainbow colours were reflected from the ſides of the *fur* and *hairs*. Alſo *black leather* boots, and a *black paper* ſnuff-box, were irideſcent in the ſunſhine. The like was obſervable of *black varniſh*, the poliſhed ſurface of which, in the ſunſhine, was priſmatic too. *Black wool* and *woollen cloth*, ſubjected to the light in the ſame manner, gave a like reſult. A *black ink-ſtand* and a *ſeal*, of *Wedgewood's earthen ware*, decompoſed the ſunbeam, and reflected rainbow colours too; and theſe, like the reſt, when removed beyond the limits of diſtinct viſion, affected the eye with a ſenſation of *uniform blackneſs*.

"What, then, is this *black*, which the Newtonians teach to be a negation or privation of all colour? Why, truly, a very different ſtate of things indeed. So far is a black body from being the abſence of all colour, that its peculiar complexion depends upon its being a co-exiſtence of all the rainbow colours. Theſe had undergone refraction on innumerable points, angles, or roughneſſes, of an almoſt infinite ſmallneſs. Therefore theſe coloured rays being too ſmall, or poſſeſſing individually too little of the matter of light to be vivid, and being too much confuſed with other colours to be ſeen diſtinctly, make up, by their joint operation, the *mixture of colours* which is called black. All coloured bodies poſſeſs the power of refracting light in a certain degree, and of reflecting ſome or other of its hues: and, of all bodies with which we are acquainted, thoſe which are denominated black affect this ſeparation of colours in the moſt complete manner, by a more minute and exquiſite ſubdiviſion, and a more ſcattered and mingled reflection, than other bodies preſent.

"*White*

"*White* has been defined, by the natural philoſophers, to be the preſence of all colours, and *black* their abſence. It would be much more correct to ſay, *white is the reflection of ſolar rays in their compound or undivided ſtate; while* BLACK *is the reflection of the ſame rays after an almoſt infinitely ſmall reſolution or decompoſition:* or *white* is the abſence of all diſtinct and ſenſible colours, and *black* is the preſence of all: or, again, *white* is the effect of *heterogeneous*, and *black* of *homogeneous* light."

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§ 53. *On the Power of Fluids to conduct Heat.*

Count Rumford, from a variety of experiments on the propagation of heat, was led to conclude that fluids poſſeſſed no power of conducting heat; and that heat was propagated through them by the internal movement of their molecules, which were of themſelves incapable of tranſmitting it. This opinion of Count Rumford was oppoſed by Dr. *Thompſon*, of Edinburgh, whoſe experiments rendered it probable that fluids were really conductors of heat, though bad ones. This ſeems to have been put beyond a doubt by the late experiments of Mr. *Murray*, who employed veſſels made of ice for the purpoſe. By this means no heat could be tranſmitted to the inferior part of the fluid by the ſides of the veſſel, and thus render the experiment inconcluſive.

The veſſel was firſt filled with oil, at the temperature of 32°, and the bulb of a thermometer placed about an inch below the ſurface of the liquid. When a heated ſolid body was ſuſpended above the ſurface of the liquid, and immediately over the bulb of the thermometer, the mercury of the inſtrument roſe five degrees and a half in the ſpace of ſeven minutes. Other experiments, both with oil and with quickſilver, gave conſtantly a nearly ſimilar reſult. Theſe experiments prove, therefore, that oil and quickſilver poſſeſs the property of conducting heat; and the ſame is probably true of other fluids. Mercury appears to be a better conductor than oil, as the thermometer in the former was obſerved to riſe more rapidly than in the latter fluid.

§ 54. *On Galvaniſm.*

Mr. Davy, to whom we are indebted for the diſcovery of ſeveral intereſting and important facts reſpecting the agency of galvanic electricity, has of late endeavoured to inveſtigate its powers in producing heat, and in effecting changes in different fluid ſubſtances. The reſult of his experiments is given in the Journals of the Royal Inſtitution. It was ſhewn by M. Fourcroy, Vauquelin, and Thenard, that the power of galvanic batteries containing large plates to ignite metallic ſubſtances is much greater than that of batteries compoſed of an equal number of ſmall plates; though their agencies upon water, and upon the human body, are nearly the ſame.

It appears extremely probable, Mr. Davy obſerves, that provided pure water, that is, water deprived of air and of all ſaline ſubſtances, be employed for filling the cells of the galvanic trough, no action would be produced. Although he was unable to aſcertain the fact by direct experiment, he found repeatedly, that a pile, compoſed of thirty-ſix ſeries of ſquare plates, of copper and zinc, of five inches in diameter, loſt its activity in nitrogene and hydrogene gaſes in about two days; and it was conſtantly reſtored by common air, and rendered more intenſe by oxygene gas. Hence there ſeems every reaſon to conclude that the phenomena of the pile are effected by chemical agency.

When two ſmall pieces of well-burned charcoal, or a piece of charcoal and a metallic wire, were made to complete the circle, in water, vivid ſparks were perceived; gas was given out very plentifully, and the points of the charcoal appeared red-hot in the fluid, for ſome time after the contact was made. The *ſenſible* phenomena were nearly the ſame with the volatile and fixed oils, æther, and alcohol; and, by means of charcoal, the ſpark could be produced in concentrated ſulphuric and nitric acids, which are amongſt the beſt of the leſs perfect conductors. The gaſes produced in this way were ſuch as were expected from theory; viz. oxygene and hydrogene in different proportions, and ſometimes,

times, where charcoal was employed, carbonic acid or hydrocarbonate.

Different attempts were made to decompoſe the muriatic acid gas by the intenſe degree of heat produced in this way; but without ſucceſs.

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§ 55. *Of Galvano-Animal Electricity.*

The relation of Galvaniſm to animal life, which at firſt excited ſo much notice, and, indeed, conſtituted the moſt ſtriking of the phenomena of Galvanic electricity, had nearly been forgotten, or ſuperſeded by its application to chemical ſcience. Of late, however, the attention of philoſophers has been drawn anew to the ſubject of *animal electricity*, as it has been called, by a number of highly intereſting experiments, which have been made by M. *Aldini*, nephew of the celebrated *Galvani*, who has recently viſited Paris and London, for the purpoſe of exhibiting to the learned the reſult of his very curious inquiries. From theſe it appears, that an *animal* pile, and an *animal* circle, can be formed, as well as a *metallic* pile and circle; ſo that we are not permitted to adopt, excluſively, the metallic electricity of *Volta*.

M. *Aldini*'s experiments exhibited the following phenomena:

1. The ſciatic nerves of a frog being laid bare (in the uſual way of preparing it for the action of the metallic armature and circle), if thoſe nerves be brought in contact with the muſcular parts of the thighs and feet of the animal, contractions immediately take place.

2. Contractions are excited by taking hold of, with the fingers of one hand, the foot or muſcular parts of the limb, prepared as above, and with the other hand touching the nerves as they hang down.

3. When an aſſiſtant held the foot or muſcular parts of the limb, if M. *Aldini* himſelf touched the nerves, no action was excited; but if, with the other hand, M. *A.* at the ſame time took hold of the hand of the aſſiſtant, thus completing the circle, convulſive motions were very readily produced.

4. M. *Aldini*

4. M. *Aldini* took the trunk of a dog recently ſeparated from the head, and on which many Galvanic experiments had been already made; and a frog recently prepared as above. Then, thruſting one finger into the ſpinal marrow of the dog, and preſenting, with the other hand, the nerves of the frog to one of the muſcles of the dog's trunk, contractions were excited as in the ordinary Galvanic experiments.—Thus it appears that the animal Voltaic pile and circle are formed wholly of living animal matter, and quite independent of metallic or other foreign electricity.

Other experiments ſhewed, that a real attraction exiſts between living muſcle and nerve; and it has even been aſſerted, that the coagulum of freſh-drawn blood is itſelf ſubject to the influence of Galvanic electricity, manifeſtly contracting on expoſure to it. But this, together with ſome other details on the ſubject, will be conſidered in our next Number.

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§ 56. *Intended new Publications.*

A new edition of Dr. Currie's (of Liverpool) *Reports* on the Effects of Water, Cold and Warm, in the Cure of Fevers will ſhortly make its appearance. It will contain, we are informed, much additional teſtimony in favour of the practice of *cold affuſion* in the various ſpecies of fever; a remedy the moſt important, perhaps, that has been introduced into the practice of phyſic for many years.

A new edition of the *Pharmacopœia Edinburgenſis* is likewiſe on the eve of its appearance. This will be intereſting to practitioners, as it adopts, in the fulleſt extent, the new nomenclature introduced by the French chemiſts.

A *third* edition of Mr. Parkinſon's *Chemical Pocket Book* has juſt made its appearance, and includes the moſt recent diſcoveries in chemiſtry, with the addition of ſeveral uſeful tables. Some ſlight alterations in point of arrangement have been alſo made, to the evident improvement of the work: an index would ſtill further add to its value.

No. LIV.

THE

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ART. LXXVI. S. T. SOEMMERING *De Concrementis biliariis Corporis humani.* 8vo. 68 Pages. Francfort, 1795. Imported by T. BOOSEY, London.

BILIARY calculi, it muſt be acknowledged, are very frequently the cauſe of ſome of the moſt painful affections to which the human body is ſubject, and of which it often happens that the conſequences are fatal. Art, unhappily, has hitherto done but little towards the removal of this diſeaſe, although there are few of which the etiology is better known; yet phyſicians have ſpared no pains to diſcover the means of its being radically cured.

Profeſſor *Soemmering*, after the moſt laborious inveſtigation of the ſubject, and in the courſe of which he has reviewed upwards of two hundred volumes, written profeſſedly upon it, has, in the little tract before us, collected into one point of view the principal ideas of their authors; and has, in fact, exhibited a compendium not leſs intereſting to the practitioner than to the phyſiologiſt.

Biliary concretions, improperly (M. *Soemmering* obſerves) termed calculi, or ſtones, vary conſiderably

in their number, ſize, weight, colour, and form. They differ, alſo, in regard to the organs which contain them; for they are found not only in the gall bladder, but alſo in the hepatic and cyſtic ducts, and in the ductus communis choledochus, which they ſometimes dilate to an enormous ſize. They occur, likewiſe, in the ſtomach itſelf, and along the whole courſe of the inteſtinal canal. Patients have been found to reject theſe concretions by vomiting, though more frequently they are voided by ſtool; and ſometimes they have been diſcharged by ulceration through the parietes of the abdomen itſelf.

There is no great difficulty in conceiving how theſe concretions are formed in the gall bladder, when the diminutive ſize of the cyſtic duct is conſidered; its valvular and tortuous ſtructure, and its extreme contractility: circumſtances, all of which have a tendency to retard the paſſage of the bile, while an infinitude of abſorbent veſſels are continually taking from it the more aqueous parts. M. Soemmering rejects the analogy which has been endeavoured to be eſtabliſhed between the formation of biliary concretions and thoſe of the urinary bladder, merely on the ground of the diſtreſſing ſymptoms of irritation and pain, which are common to both affections. *Haller* and *Fallopius* had long ago obſerved that the latter are much leſs frequent than the former. There are alſo countries, particularly *Hanover*, where concretions in the veſica urinaria are never met with, while thoſe of the biliary ducts are extremely common. It does not appear that any part of the world is entirely exempt from this affection. This is ſo confirmed a fact, that Dr. *Heberden* has even aſſerted, that ſcarcely any perſon attains the age of forty without having concretions formed in the gall bladder: this, however, appears queſtionable. Biliary concretions are more particularly obſerved to occur in perſons beyond the middle age. Few inſtances of them happen in young people; and they are ſtill more rarely, if at all,

all, found in infants. Women are more ſubject to them than men; and, in general, thoſe who lead an active life are much leſs liable to be thus affected than perſons of ſedentary habits----as ſtudious perſons, monks, priſoners, and thoſe who labour under the preſſure of anxiety. The antients, according to *Haller*, knew little of the diſeaſe, as probably they were more in the habits of uſing exerciſe than people of modern times; and it is for the ſame reaſon, perhaps, believed by ſome, that perſons of groſs and corpulent habits are more ſubject to it than thoſe of more ſlender forms.

The number of concretions which have been found in the ſame gall bladder is quite indeterminate. *Morgagni* ſtates, that he has ſeen as many as three thouſand, and ſometimes there is only a ſingle one. They do not differ leſs in their bulk, which has been found from the ſize of a pea to that of an ordinary pullet's egg. In ſome cabinets, inſtances are to be found of gall ſtones of a ſize ſo conſiderable, as to weigh from three to four ounces: for the moſt part, their number in the ſame bladder is in the inverſe ratio of their ſize. They vary, alſo, as to their ſpecific gravity: in general, the moſt tranſparent, eſpecially when they have been well dried, ſink in water; on the other hand, thoſe whoſe colour is more deep, are lighter, and ſwim on the ſurface. There are ſome which do not ſink to the bottom of water till they have remained ſome time immerſed in it; others have a ſpecific gravity, with reſpect to water, ſometimes as 0,200, 0,346, or 0,803 to 1,000.

Some of theſe concretions are of a perfect black colour; others are only blackiſh, or of the colour of aſhes; ſome are of different ſhades of yellow, or greeniſh, or mottled; others of the colour of lead, or ore; or white, of a pearly or ſpermaceti appearance, and brilliant in their interior, the ſubſtance of which is ſometimes veined, of different colours.

Their form is as various as their colour, though, in general, their ſurfaces are angular, and cut into facets, more or leſs numerous, and which appear to have been formed by friction. Frequently, however, they are rounded, ſpherical, or oval, and more or leſs elongated: ſometimes they are rugged, or tubercular, like the mulberry, and covered with a ſemi-tranſparent coat, in the manner of pearls, and more or leſs poliſhed. They very rarely exhibit the appearance which is frequently found in thoſe of the urinary bladder,----of an aſſemblage of a number of ſmall concretions united into one larger maſs.

Sometimes theſe biliary concretions line, like a cruſt, the cyſtic and common ducts, and take, alſo, the form of tubes: but whatever might have been their primitive form, they frequently change it, as is evident from breaking them, and obſerving their internal ſtructure.

As to hardneſs, they are ſometimes found to yield to the preſſure of the finger, and even to contain in their cavities liquid bile: again they are often ſo firmly compacted as to require a hammer to break them. It frequently happens that they break of themſelves, and fall into powder, after having been thoroughly dried.

Biliary concretions differ as widely in the nature of their ſubſtance as in their form and ſtructure. Some, which are of a perfectly black hue, ſo entirely reſemble exſiccated bile, that it is difficult to diſtinguiſh them; and on breaking them they exhibit a perfectly homogeneous appearance. Their figure is irregular; they are of an exceedingly bitter taſte, and extreme hardneſs: theſe, however, are rarely met with. Others, of ſtill rarer occurrence, are of a ſpherical form, and of the colour of ruſt: theſe, on being broken, appear white within, with ſhining ſtreaks like thoſe of zeolite; and in their centre preſent, again, a brown colour, without any appearance of ſtreaks. This ſpecies of concretion is friable, and of very tender conſiſtence.

Others,

Others, which are not more common than the preceding, are tinged yellow by the ſurrounding bile, and ſometimes black when they have remained in bile in a putrefactive ſtate. Within they are tranſparent like cryſtal, or of a ſparkling whiteneſs like that of ſelenite, with a ſlightly ſtreaked appearance: at the centre they have a brown colour, and are eaſily broken; theſe are taſteleſs, and melt under the action of fire like ſealing-wax: they alſo burn in the ſame manner.

The concretions which are the moſt common are ſometimes black, and occaſionally whitiſh on their outſides: their ſurface is highly poliſhed; their ſubſtance appears entirely compoſed of concentrated layers, of which the colour is often more or leſs deep; but theſe layers cannot be ſeparated as in the concretions of the urinary bladder. This ſort is always extremely hard and tenacious. Some of them, of a dark hue, have a reſinous and brilliant nucleus; and theſe are in general friable and inſipid.

There are ſome which are ſo impregnated with earthy matter, that it is ſcarcely poſſible to inflame them: others, without aſſuming any particular form, reſemble melted wax. Others contain a deep black nucleus in the centre, which is enveloped in earthy matter.

Haller has arranged all biliary concretions into two claſſes. In the firſt he includes thoſe which are of conſiderable bulk, rounded, brown within, friable, and inſipid. He refers to the ſecond claſs thoſe which are of a ſmaller ſize, more numerous, black, not tranſparent, and cut into facets.

Walter has made a claſſification which appears a more natural and judicious one; according as they are ſtriated, covered with a ſort of cortical ſhell, or formed of concentrated laminæ.

The ſtriated concretions, he obſerves, are very rare: they preſent triangular lines, the ſummit of which is at the centre, and the baſes at the circumference. Each of theſe ſtriæ is diviſible into ſeveral laminæ, like

talc. Sometimes the baſe of one ſet projects beyond that of another, the effect of which is to produce aſperities on the ſurface, very ſimilar to thoſe which the cryſtals of ſugar form upon comfits. Sometimes theſe aſperities are rounded, and give to the concretions a mulberry-like appearance. Being compoſed of a friable reſinous-like ſubſtance, this ſpecies of concretion melts on the application of heat before entering into combuſtion. They have always more or leſs of tranſparency.

The ſecond claſs includes the concretions compoſed of a nucleus, an external coat, and an intermediate ſubſtance. This intervening matter is generally different from that of the nucleus which it envelopes: the one, for example, being light and porous; the other, denſe and compact, or *vicé verſâ*. The intermediate ſubſtance is often of a fibrous ſtructure: it is covered, together with its nucleus, by a coating ſometimes denſe and thick; at others, thin and friable, and of which the colour varies conſiderably, being black, or brown, and ſometimes of a greeniſh or yellowiſh hue. Occaſionally, it aſſumes a whitiſh or mixed colour. It very ſeldom happens that the external cruſt is brilliant, white, or tranſparent. It is not always as inflammable as the ſubſtances it contains; but, on the contrary, it is often earthy, and uninflammable: while, at the ſame time, the nucleus and the intermediate maſs burn with great facility.

The third claſs comprehends thoſe concretions which are formed into laminæ. Theſe have alſo a nucleus, but which is ſurrounded by a number of layers, or tunics. They are for the moſt part of a blackiſh colour; light, porous, and brittle. Their ſubſtance is almoſt entirely earthy, and they contain very little oily matter: it is therefore difficult to inflame them, their combuſtion reſembling that of charcoal. Some of them, when expoſed to flame, ſwell up, and give out an odour reſembling that of burnt hair.

However

However different the appearances are which in general preſent themſelves in biliary concretions, both with regard to their ſize and figure, and the nature of their component parts, it is a circumſtance worthy of obſervation, that all thoſe which are found in the ſame cyſt are formed of ſimilar materials, and poſſeſs preciſely the ſame properties. Thoſe which are of a cryſtalline kind, tranſparent, and reſembling ſelenite, are never found mixed with thoſe which are opaque, of a greeniſh colour, or formed of laminæ. Whence it may fairly be concluded, that all thoſe which are found together in the ſame cyſt have been formed at the ſame time; for if they had originated at different periods, it might be expected they would have alſo differed in their nature and characters.

The layers of biliary concretions differ much leſs from each other than generally happens with thoſe of the urinary paſſages.

Chemical Analyſis of biliary Concretions in the human Body.

As biliary concretions are materially different in their general characters, ſo their chemical analyſis will naturally be expected to preſent conſiderable differences. The following is the reſult of *Haller*'s inquiries, collected from the various authors who have written on the ſubject.

Biliary concretions contain a conſiderable quantity of air, amounting, in ſome caſes, to more than ſix hundred times their bulk. They are generally inſipid, with the exception of the nucleus, which is bitter.

Some of them, though the number of theſe is ſmall, readily diſſolve in water. They are more eaſily diſſolved in alkaline liquors, and moſt completely in oil of turpentine; ſeldom in ſpirit of wine. The weak ſpirit of nitre ſoftens and diſſolves them, as does the juice of horſe radiſh, ſcurvy-graſs, and other plants of this claſs. Expoſed to heat, they melt like wax;

and give out, on diſtillation, a little phlegm, a yellow oil, a red oil, and, laſtly, a portion of black and empyreumatic oily ſubſtance. Theſe oils acquire a pleaſant odour by rectification: they unite with the mineral acids, with which they form cryſtals. Many able chemiſts, after Haller, proſecuted the ſame inquiry.

According to *Dietrich*, biliary concretions are inſoluble in water, even with the aſſiſtance of heat and trituration. They burn, and emit an odour like that of wax. They diſſolve in concentrated ſulphuric acid, affording a ſulphureous ſmell, with a reſinous reſiduum. Diſtilled in a ſand bath, they afford a good deal of fixed and inflammable air, and afterwards emit cloudy vapours. After this, there paſſes over into the receiver a yellowiſh ammoniacal liquor, on the ſurface of which ſwims a reddiſh, viſcous, empyreumatic oil: the reſiduum is a light ſhining charcoal, not eaſily combuſtible. If the earth, which remains after combuſtion, be diſſolved in ſpirit of nitre, and diluted acid of ſugar be poured into the ſolution, a turbidneſs enſues. Hence it would appear that the earthy ſubſtance is merely phoſphate of lime.

Ten grains of a biliary concretion reduced to a powder, and digeſted in a cloſe veſſel, with half an ounce of highly rectified ſpirit of wine, produced ſcaly, light, and brilliant cryſtals, extending themſelves from the bottom to the ſurface of the liquid, and which were not diſſolved by a farther addition of ſpirit of wine, but maintained their former appearance. Separated by filtration, and thoroughly dried, they afforded exactly the ſame weight of biliary matter, having undergone no alteration, except the cryſtalline aggregation of its elements, and the having acquired a brilliant white colour. The matter diſſolved completely in oil of almonds.

Dietrich concludes, from his reſearches on this ſubject, that biliary concretions contain 85 per cent. in weight of a matter ſimilar to wax, and 15 of a glutinous watery ſubſtance.

Gren,

Gren, whoſe experiments led him to a ſimilar concluſion, found that biliary concretions diſſolve in ethers, as the vitriolic, but not at all in ſpirit of wine, or ſaline liquids.

Fourcroy, who analyſed the biliary concretions of quadrupeds, has obſerved, that ſome of them are formed of a matter much reſembling wax, and that others conſiſted merely of inſpiſſated bile. They were both different from the concretions found in the human ſubject.

According to *Schlippe*, apothecary of *Mayence*, biliary concretions diſſolve neither in the marine nor the nitric acids, nor in the acetic ether. Vitriolic ether imperfectly diſſolves them. They diſſolve almoſt entirely in the oil of turpentine, and more completely ſtill in a mixture of equal parts of this oil and vitriolic ether. It ſhould not aſtoniſh us, therefore, obſerves M. *Schlippe*, that even the vapours of this compound have the power of diſſolving theſe concretions.

Of the Cauſes which produce biliary Concretions.

A multitude of cauſes have been aſſigned for the production of gall ſtones. Some have attributed them to the uſe of aceſcent, glutinous, farinaceous, food; cheeſe; ſour wines; ſpirituous liquors; new beer, &c. Others have attributed their formation to a vitiated condition of the primæ viæ; to atony of the inteſtinal canal, or to acid matter exiſting there; for it is known that certain acids have the property of coagulating bile. They contend, that the acid formed in the ſtomach paſſes into the duodenum, and from thence into the ductus communis choledochus, where it combines with and coagulates the bile; and this opinion they endeavour to confirm by ſome obſervations of *Morgagni*, *Haller*, and *Dietrich*, which ſhew that an acid forms an eſſential part of all biliary concretions. But, if this be true, how happens it that infants, who have always ſuch an abundance of acidity

dity in the firſt paſſages, are exempt from this diſeaſe?

Some have imagined that the too copious uſe of abſorbent earths, or drinking water ſurcharged with calcareous matter, was the true cauſe of theſe concretions. Theſe cauſes might, indeed, account for their formation in the ſtomach, but it is difficult to conceive how they ſhould give birth to concretions in the gall bladder.

Biliary concretions have been attributed to a phlegmatic and melancholic temperament; to the depreſſing paſſions of the mind; to anger; old age; a ſedentary life; too much ſleep; ſitting long after meals; a bent poſition of the body; a ſanguineous plethora; a paralytic atony of the gall bladder; a ſpaſtic conſtriction of the hepatic or cyſtic ducts; the metaſtaſis of morbific matter; and, laſtly, to a conſtitutional prediſpoſition, hereditary or acquired.

Some have compared the formation of biliary concretions to the depoſition of tartar in wine caſks. But we know that tartar owes its origin to the evaporation of the fluid which held it in ſolution; and the evaporation of the aqueous parts of the bile does not in any degree afford a ſubſtance reſembling the concretions found in the gall bladder: it produces only a blackiſh and homogeneous extract.

Putrefaction has no ſhare in the formation of theſe concretions: putrid bile, on the contrary, acquires a greater degree of fluidity; it coagulates with greater difficulty; and although it has been much obſerved in this ſtate of alteration, it has never ſhewn any tendency to form concretions: nor has any concretion been obſerved where the gall bladder has been found filled with an enormous quantity of bile.

It is evident that biliary concretions do not conſiſt of bile thickened in conſequence of the abſorbent veſſels removing the watery parts; for they are generally lighter than water, whilſt inſpiſſated bile has a greater ſpecific gravity, and readily ſinks in water. The latter,

alſo

alſo, is exceſſively bitter: the concretions are inſipid, and exhale a leſs diſagreeable odour when burnt. Sometimes, however, there have been found in the gall bladder fragments of inſpiſſated bile; but this is a very rare occurrence: theſe probably would be found ſoluble in a more fluid bile, which is not the caſe with biliary concretions. It is probable, however, that a portion of inſpiſſated bile forms the nucleus of every concretion, although ſuch a nucleus is ſeldom diſtinctly perceptible. *Durande* conſiders the caſe of a concretion being found of a perfectly uniform maſs as a very rare occurrence. Profeſſor *Soemmering* thinks that the tranſparent concretions are commonly formed very ſuddenly, by a ſort of coagulation. The reaſons upon which he founds this opinion are the following.

He obſerves, that the analogy betwixt the ſubſtance of the bile and that of biliary concretions is ſo marked as to leave no ground of doubt that one may be the produce of the other.

Experience proves that bile is very readily coagulated, by mixing it not only with the diluted mineral acids, but alſo with lemon juice, cream of tartar, the acidulous mineral waters, nitre, vinegar, and urine. With theſe, however, the action is leſs prompt; and it is requiſite that the bile be extremely freſh. If it has any tendency to putrefaction, it coagulates with difficulty. The concrete obtained in this manner contains only the oily parts of the bile; a certain proof of its reſulting from the ſeparation of its elementary parts.

The regularity of theſe concretions indicates their being formed very ſuddenly; for if their formation was ſlow, the conſtant motion of the body muſt prevent their being thus regular. This is farther proved by the perfect reſemblance to each other of thoſe concretions which are found in the ſame gall bladder. He thinks it very probable that this concretion is the conſequence of a vitiated ſtate of the membranes of the gall bladder; and it is not eaſy to conceive that the bile can undergo

undergo any change in the body but by a change in the action of the containing organ. We might ſay, with *Dietrich*, that the perfect cryſtallization of certain biliary calculi proves that they are capable of being formed in the way of ſalts; whilſt the form of thoſe which are compoſed of layers, ſhews, that in them the earthy matter is depoſited ſucceſſively on their ſurface.

Symptoms of biliary Concretions.

We often obſerve, that biliary concretions, even of a large ſize, remain in the gall bladder during the whole life of the perſon, without exhibiting any characteriſtic ſymptom, and without affording a ſuſpicion even of their exiſtence.

Sometimes they occaſion only a ſenſation of weight, particularly when the perſon is lying on the left ſide. Often, alſo, they produce pain, with a ſenſe of preſſure under the xiphoid cartilage; in the region of the ſtomach; in the left hypochondrium; and ſometimes throughout the whole of the abdomen. Theſe ſymptoms ſhew themſelves with greater or leſs violence, according to the ſize, ſituation, and form of the calculus, and according as the ſtomach is more or leſs diſtended. *Strack* has obſerved, that all thoſe who have biliary concretions have the epigaſtric region tumid, and in a tympanitic ſtate; and that this diſtenſion ſpeedily vaniſhes upon the concretions being diſcharged.

Sometimes the calculus changes its poſition, and with it the ſeat of the pain, which reſembles ſometimes that of colic, ſometimes that which is occaſioned by the deſcent of a ſtone through the ureters, without however any ſymptoms of dyſury. Sometimes there are other ſenſations excited, which the patients deſcribe differently, and which extend themſelves to the right arm, and even to the haunches. Theſe pains ariſe, without doubt, from the irritation

produced

produced by the calculus upon the hepatic nerves: they are, however, but equivocal ſigns of the actual preſence of biliary concretions. It is a remarkable fact, that theſe pains, even when they are moſt violent, produce not the ſlighteſt alteration of the pulſe.

The functions of the digeſtive organs are apt to be deranged by the preſence of concretions in the gall bladder; and ſymptoms of indigeſtion, ſuch as acid eructations, nauſea and vomiting, tranſient heat of the ſtomach, conſtipation, or diarrhœa, take place; and, after the paroxyſm of pain has ſubſided, evacuation of fœces of a whitiſh colour.

Univerſal, or ſometimes only partial, jaundice often accompanies theſe ſymptoms: it is often ſeen firſt in the greater canthus of the eye: frequently it appears, and diſappears alternately, as the concretion happens to be ſituated in the hepatic or the cyſtic duct, or when it cloſes entirely the ductus communis. In the latter caſe, if the gall bladder be much diſtended with bile, its abſorbent veſſels, or thoſe of the liver, take up this fluid, and carry it into the blood veſſels, whence it is diſtributed throughout the whole ſyſtem. The urine aſſumes the colour of ſaffron, or the appearance of brick-duſt diffuſed through it; and this ſymptom is ſometimes attended with ſtrangury and iſchury. In perſons who are much emaciated, the colliſion of the calculi has been ſometimes diſtinctly heard through the teguments of the abdomen; ſometimes alſo they have been manifeſt to the touch.

When the pains produced by this cauſe are extremely violent, they ſometimes give riſe to very formidable ſymptoms; ſuch as vertigo, hæmorrhagy from the noſe, ſpaſms, convulſions, and other dangerous affections of the brain: ſometimes they induce acceſſions of fever, aſthma, aſcites and anaſarca, hæmorrhoidal congeſtions, inflammation and ulceration of the gall bladder itſelf, and of the neighbouring parts.

When nature makes an effort to diſcharge theſe concretions, it is often accompanied with ſudden and agonizing

agonizing pains, tenſion on the right ſide, nauſea, vomiting, feveriſh ſymptoms, with a ſlow and contracted pulſe: theſe paroxyſms recur at intervals, perhaps of a few hours, and ſometimes of ſome days. While the concretions are neither diſſolved or evacuated, this diſeaſe may be conſidered as incurable. Upon the whole, whatever probability there may be, from the ſymptoms now enumerated, of the preſence of biliary concretions, their evacuation is the only complete and certain proof of their exiſtence.

Treatment of the Affections produced by biliary Calculi.

Phyſicians have been long occupied in ſearching for a ſolvent of biliary concretions. For this purpoſe they have multiplied their experiments, in the perſuaſion, whether well or ill founded, that a menſtruum which is capable of diſſolving them out of the body would have the ſame effect upon them when contained in the gall bladder, if adminiſtered as a remedy.

With this view they have employed different ſaline liquids, ſuch as ſolutions of ſal ammoniac, ſoda, potaſh, and lime-water; tartarized antimony; terra foliata tartari, prepared with dulcified ſpirits of nitre. Soap, alſo, to the amount of an ounce a day, has been exhibited without the leaſt ſucceſs.

With the ſame view have been employed the recent juice and extract of ſaponaria, taraxacum, ſuccory, dogs-graſs, fumitory, &c. &c.: ſucculent fruits of all kinds have alſo been tried in vain. From the animal kingdom various ſubſtances have been taken, for the accompliſhment of this object, but with no better effect; as aſſes-milk, whey, eggs, the yolk of eggs mixed with Hoffmann's anodyne liquor, &c.

After an infinitude of trials of this ſort, M. *Soemmering* obſerves, the remedy has at length been diſcovered which was ſo long ſought in vain, and which is the mixture of æther and ſpirit of turpentine, hint-

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ed at above: the honour of the diſcovery is due to *Durande*. This practitioner, after having continued for a certain time the uſe of emollient and aperient remedies, gave to his patients labouring under this diſeaſe a mixture of three parts of vitriolic æther, and two of ſpirit of turpentine, in the doſe of two ſcruples or a drachm, every morning; and upon this he directed them to take ſome diluent drink, ſuch as milk-whey, veal broth, &c. &c. He ſays, he has ſeen biliary concretions perfectly diſſolved by this method, and diſcharged by ſtool, in the form of a yellow matter, reſembling peaſe. This remedy, however, ſometimes occaſions nauſea, and other diſtreſſing ſymptoms, which require that it ſhould be adminiſtered with due caution, leſt the pain ſhould be increaſed by it; and before having recourſe to its aid, the methods of obviating inflammation ſhould be aſſiduouſly adopted.

Durande affirms, that, from the year 1773, he has cured by this remedy all whom he met with ſuffering from gall ſtones; and M. *Soemmering*, as well as a great number of other practitioners on the continent, have given their teſtimonies to its efficacy from their own experience. They are far, however, from granting that the action of his ſolvent is exerted, as *Durande* ſuppoſes, through the coats of the duodenum and gall bladder.

Various means have been recommended for the mitigation of pain during the paroxyſm. *Haller* propoſes opium with this intention. *Durande* cenſures it, as always occaſioning extreme depreſſion. Emollients, both external and internal, and injections per alvum of the ſame nature, are always uſeful.

Some have highly extolled the effects of emetics, whilſt others have decried the uſe of them as injurious; and caſes have been mentioned where the gall bladder was ruptured by the efforts which they have occaſioned. But by abſtaining from their uſe during

during the moſt urgent ſymptoms of the painful paroxyſm, and by giving them only in very ſmall doſes, they have been frequently found ſerviceable. As to purgatives, thoſe of a draſtic kind are never adviſable: the milder ones, ſuch as the oleum ricini, &c. have been found to produce ſalutary effects.

Bleeding is ſometimes neceſſary, in order to obviate inflammation of the liver and the neighbouring parts; ſome one, nevertheleſs, has obſerved, that it is better in this caſe to imitate the operation of nature, and rather to excite inflammation and ulceration, for the purpoſe of freeing the calculus from its confinement. *Petit* has even recommended an inciſion into the gall bladder, for the purpoſe of extracting concretions which are lodged there. But where no adheſion has taken place of the gall bladder to the parietes of the abdomen, ſuch means are altogether inadmiſſible.

It has been ſuppoſed that all irritating and ſalted foods, bitters, ſpirits, aromatics, &c., acrid purgatives, long watchings, too violent bodily exertions, &c. favour the formation of biliary calculi; but theſe are mere aſſertions, and deſtitute of foundation.

It is more probable that by due attention to exerciſe, a mild and well regulated diet, the uſe of fruits, milk, whey, &c.; by timely bleeding, together with the uſe of ſmall doſes of *Durande*'s remedy, or of vitriolic æther, mixed with the yolk of eggs, the formation of theſe concretions may be, in a great degree, prevented.

Giving credit to the teſtimonies adduced in favour of M. *Durande*'s remedy, and they are undoubtedly of a reſpectable kind, it is extremely difficult to explain the mode of its action. For although this ſolvent may, out of the body, effectually decompoſe and diſſolve biliary calculi, it is obvious that it cannot exerciſe the ſame ſpecies of action on ſtones contained in the gall bladder, with which it cannot come in contact. Can it be ſaid, as M. *Soemmering* ſeems to ſuppoſe, that

that its vapours may do more than the liquid itſelf? There is no proof of a more ready paſſage in the one caſe than in the other; nor that thoſe vapours are ſufficiently active to produce the effect of a menſtruum. In admitting the authenticity of the cures ſaid to have been effected by this remedy, and regarding it as the moſt active means which can be employed for the removal of the evils occaſioned by biliary concretions, we muſt ſtill remain doubtful in regard to its ſolvent powers: and as numberleſs obſervations demonſtrate that theſe concretions may remain during a number of years, and even to the end of a perſon's life, in the gall bladder, without producing the ſmalleſt irritation, it may be preſumed, that the whole of the effect of this remedy conſiſts in giving to the biliary organs the condition beſt adapted to prevent the formation of ſuch concretions, and in obviating the tendency to thoſe ſpaſmodic affections which have been erroneouſly attributed ſolely to their preſence.

Art. LXXVII. Jo. Bap. Burserii *Inſtitutiones Medicinæ Practicæ.*

(Continued from page 424.)

In his ſecond volume Burſerius treats of *exanthematic febrile* diſeaſes, which he defines, thoſe in which a fever is neither an eſſential nor a conſtant aſſociate: he divides them into primary and ſecondary, malignant and benign, regular and irregular. Of the primary kind he conſiders *variolæ*, *morbilli*, *purpura*, *ſcarlatina*, *exanthemata urticata*, *miliaria*, *peticulæ*, *eryſipelas*, and others of this kind. Theſe diſeaſes are termed febrile, becauſe a fever ſometimes precedes the eruption, ſometimes accompanies it, and ſometimes only ſucceeds it: but not fevers. Neither does the fever obſerve any regular order, or ſhew any cer-

tain type, but ſeems to be an effort of nature to expel an irritating and offending material, and is therefore ſymptomatic only.

In regard to the cure of eryſipelas, *Burſerius* juſtly obſerves, that phyſicians are unfortunately much divided amongſt themſelves. Concerning blood-letting, he ſays, if the fever be violent, with conſiderable plethora, impeding the ſalutary operations of nature; if there be a ſanguine temperament, a full, ſtrong, and hard pulſe, pain of the head, or difficulty of breathing, it is altogether requiſite, and muſt be repeated as occaſion requires. On the contrary, in the abſence of plethora and a ſanguine temperament, when the fever is ſlight, and unattended with violent ſymptoms, and where there are languor and debility of the ſyſtem, it muſt be avoided as unneceſſary or improper. Our author does not agree with Dr. Cullen, in ſuppoſing pemphigus to be always a ſymptomatic diſeaſe, becauſe it ſometimes occurs alone, without any fever.

The two next chapters treat on meaſles and ſmall-pox. Complete and accurate hiſtories of theſe are given, drawn from various original writers.

To this ſucceeds the chapter *De Peticulis*, ſive de morbo *Petechiali*. The author affirms, in oppoſition to the general opinion, that this eruption happens both as a primary and as a ſymptomatic diſeaſe. This opinion is ably diſputed by *Bergius (Act. Acad. Scient. Suecic.* Vol. xxviii. p. 326), and as ably defended by *Burſerius*. A long note is ſubjoined by the latter, comprehending the arguments on both ſides, and which it may be ſatisfactory to our readers to have laid before them. The following reaſons induce Dr. *Bergius* to conſider petechiæ as always ſymptomatic:—firſt, becauſe they have a ſtrong reſemblance to the red miliary eruption, which is always ſymptomatic. 2dly. The fever is not diminiſhed on the completion of the eruption; on the contrary, the ſymptoms are increaſed, and become more violent. 3dly. Petechiæ do not

appear

appear in every perſon labouring under the ſame diſeaſe; and when they do, they often quickly diſappear again without any ſubſequent injury, or any additional bad ſymptom: nay, ſome have entirely recovered before the departure of the petechiæ. 4thly. Cathartics and an antiphlogiſtic regimen are of great utility in this eruption, by expelling putrid humours and reſiſting putrefaction: a treatment which would be hurtful in a primary diſeaſe; for it would either impede the eruption, or repel it to the internal parts, and thus deſtroy the patient by metaſtaſis. *Burſerius* thus endeavours to refute the above concluſions of *Bergius*. He obſerves, firſt, that the reſemblance between petechiæ and the red miliary eruption is not ſo great, but that an evident difference may be diſcovered by any one who is well acquainted with the deſcription and hiſtory of each; neither, he ſays, is the miliary eruption always ſymptomatic: a concluſion from hence is, therefore, not correct; and if it were, it only proves that neither petechiæ nor miliaria are always ſymptomatic. 2dly. The fever, *Burſerius* allows, is not always diminiſhed after the eruption of petechiæ, but, on the contrary, ſymptoms ſometimes increaſe not only when they are ſymptomatic, but alſo when primary and malignant. The fever however is diminiſhed, and all its ſymptoms mitigated, when, the eruption being ſecondary, it is critical, and appears after concoction; or, when primary, it is of a benign nature. 3dly. The eruption does not always diſappear without injury, ſince experience ſhews that an imperfect, difficult, and ſlow eruption, and much more a ſudden repulſion of it, whether the diſeaſe be primary or ſymptomatic, often induce not only a more violent, but ſometimes fatal diſeaſe; except ſome other evacuation, as purging, or diureſis, or ſweat, ſupplies the place, as in ſmall-pox. If ever, therefore, an imperfect eruption of petechiæ or a repulſion of them takes place without conſequent injury, it happens only in ſymptomatic caſes, not in thoſe where the eruption is

a primary diſeaſe. It ſhould not be wondered at that petechiæ have ſometimes remained, though the patient was convaleſcent; ſince ſo far from ſhewing the eruption in this caſe to be ſymptomatic, it proves that it was either critical, or of a very mild kind, ſo as to admit of the fever, with all its ſymptoms, diſappearing before the eruption: ſimilar to what happens often in ſmall-pox, meaſles, and eryſipelas. 4thly. Purging and an antiphlogiſtic regimen are ſometimes not only nót uſeful, but hurtful; in either way he does not think the point can be determined from this.

The following reaſons lead Burſerius to conclude that petechiæ exiſt as a primary diſeaſe; becauſe when petechiæ prevail epidemically in a place, it often happens that ſolitary caſes of the ſame make their appearance, without being accompanied with any fever, or any other diſeaſe; ſo that many have then eruptions in different places, without any inconvenience, or being prevented from attending to their ordinary affairs. *Has nemo dixerit non primarias.*

Chap. 11. *De Exanthemate Miliari.* This Burſerius alſo affirms to be a primary diſeaſe: an opinion which he expreſſes in the following words:—" Multiplici igitur obſervatione conſtitit non modo primarium, eſſentialem, et peculiarem morbum eſſe, ab aliis omnino diſcretum, neque ſolis puerperis infenſum, verum etiam aliis cujuſque ætatis, temperamenti, ſexuſque hominibus."

In the third volume Burſerius treats of the diſeaſes of the internal parts, beginning with pain of the head, the remote cauſes of which are thus pointed out:—" Ad cauſas, quæ proxime dolorem capitis efficiunt, redigitur quidquid partes ſive interiores, ſive exteriores, ſentiendi facultate præditas urget, diſtrahit, divellit, comprimit, erodit, aut quocunque alio modo irritat ac lædit. Quo ſpectant vehementior ſanguinis motus, aut nimia copia, aut congeſtio, exteriorum partium communium velamentorum, muſculorum apaneuroſium, pericranii aut interiorum, meningum videlicet, et

et cerebri vaſa: et cellularia quandoque ſpatiola, atque alia receptacula diſtendens, ſerum accumulatum, præſertim acre, aut confertim et repente effuſum, in primis intra membranas et ventriculos, inflammatio, eryſipelas, cacochymia ſcorbutica, venerea, pituitoſa, arthritica, rheumatica, acritates herpeticæ, ſcabioſæ, varioloſæ, et alius generis, virus plicæ polonicæ, præſertim repulſum, aut retentum, metaſtaſes variæ, tumores, abſceſſus, exoſtoſes; tophi, caries, mala cranii ipſius conformatio, dura mater indurata, aut oſſea facta; ejuſdem proceſſibus innatæ oſſeæ ſquamæ, aut verrucæ, duræ, acutæ, pungentes, lapilli alicubi concretæ, futurarum defectus, ſpaſmi quicunque liberum humorum circuitum impedientes, atque alia hujuſmodi."

The following caſe of pain of the head, which the author quotes from *Tiſſot*, is too important to be paſſed over. An unmarried woman, thirty years of age, and otherwiſe healthy, was afflicted with a ſevere pain of the head, affecting in particular the internal poſterior angle of the right parietal bone, and ſo circumſcribed as to be covered by a ſhilling; but the whole anterior part of the head was ſympathetically diſordered. No benefit reſulted from veneſection, from arteriotomy, from pediluvia, or cold bathing, from the dropping of cold water upon the part, from opium, or from a ſeton. Only ſlight and temporary relief was afforded by cupping and bliſtering. Dr. Tiſſot conjectured that the ſeat of the pain was external, and that there was no material cauſe of it under the ſkin and muſcles: he directed the affected part to be freely divided down to the bone, by a crucial inciſion, ſo that the cutaneous and muſcular nerves being cut, the ſenſe of the part was aboliſhed. Immediately after the inciſion the pain ceaſed, and a ſuppuration being continued, the uneaſineſs in the fore-part of the head alſo gradually diſappeared.

In ſpeaking of the cure of the internal hydrocephalus, Burſerius ſeems to deſpair of ſucceſs; for he

ſays—"Nihil, etſi febris vehemens, et capitis dolor urget, ſolatio fuere ſanguinis miſſiones, hirudinum, cucurbitularum aut cantharidum applicatio, balnea, fotus, epiſpaſtica pedum plantis admota, aliiſve partibus, nec ipſa reſolventia, nervina, paregorica, aut alia cujuſvis facultatis."

In the 4th chap. Burſerius gives a full and accurate deſcription of apoplexy and paralyſis. Concerning the remote cauſes of apoplexy, as aſcertained by diſſection, he thus ſpeaks. It is certain, from the obſervations of Willis, Wepfer, Valſalva, Lieutaud, Morgagni, and others, that in thoſe who have died of apoplexy, the vaſcular parts of the head have been diſcovered to be in a turgid ſtate: all the veſſels, as well of the meninges as of the cerebrum and cerebellum, full of blood, and enlarged; the plexus choroides either diſtended with varices, diſcoloured, or full of hydatids; blood, or ſerum, or both, effuſed into the ventricles, ſometimes forming a cavity for itſelf in the very medullary ſubſtance of the brain, and paſſing between the meninges and the brain; alſo water within the cranium, or between the dura and pia mater, more copious at the baſis of the brain, and which frequently penetrates to the medulla ſpinalis. Sometimes inſtead of water there is a gelatinous fluid, filling all the cavities of the brain; ulcers, effuſions of pus, abſceſſes, tumors of various kinds occupying the cerebrum, cerebellum, or medulla oblongata; a hardneſs and enlargement of the pineal gland; too great tenſion or laxity of the membranes, or ſome other topical derangement; the cerebrum itſelf more flaccid, in a vitiated ſtate, or harder and more ſolid than natural; air evolved and extricated, obſtructing the blood veſſels, or forced within the brain and its coverings. Polypous concretions have likewiſe been found in the veſſels and ſinuſes of the meninges: ſuch phenomena are, however, as Morgagni obſerves, very rare, and often connected with other leſions; ſo that he doubts if they are to be eſteemed the ſole cauſes

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of apoplexy. It appears, therefore, that in apoplexy the brain and its appendages are obſtructed, or in ſome manner injured, ſo as to be rendered incapable of performing their functions: hence it is not improbable that the brain ſuffers in its ſoft and delicate texture a ſimilar injury in thoſe caſes of apoplexy, where, on diſſection, no injury is evident to the eye; as in ſome caſes from concuſſion or violent commotion of the brain, or in apoplexy ariſing from a malignant intermittent.

In a ſubjoined note it is aſſerted, from *Valliſneri*, that, in the diſſection of many apoplectics, not the ſlighteſt leſion has appeared either in the meninges, in the cortical or medullary part, in the ventricles, blood veſſels, lymphatics, or in any part of the brain, or even the cranium. He gives the following ingenious conjecture on the remote cauſes. From the above facts we are inclined to ſuppoſe, that whatever fills, diſtends, obſtructs, ruptures, lacerates, erodes, or compreſſes, the veſſels of the brain and meninges too much, and thereby urges, retards, or entirely impedes, the flow of blood through the ſame, or in any manner deſtroys the intimate fabric and ſtructure of the brain, may be the cauſe of apoplexy.

Burſerius very properly admits of the two ſpecies of apoplexy, ſanguineous and ſerous. He gives the following ſigns as denoting a tendency to each: and, firſt, the *ſanguineous*. The circumſtances diſpoſing to this are, a full and luxurious mode of living, with little exerciſe; middle age; a ſanguine temperament; the ſpring ſeaſon; warm and moiſt weather; ſuppreſſed evacuations of blood. Frequently it comes on without any previous ſymptoms, eſpecially if it proceed from a rupture of blood veſſels, or any violent cauſe propelling the blood to the head. In this ſpecies the face is red, the veins of the eyes and temples are turgid, the head feels hot, the eyelids are half open, and rigid, and the eyes prominent: perſpiration is often free, ſometimes ſtertorous; the pulſe for the

moſt part full and large; at other times very ſtrong, and like the pulſe in inflammatory diſeaſes: the diſeaſe going on, it becomes more languid, ſlow, and weak; the breathing is ſhortened; ſometimes there is a violent ſtertor, grinding of the teeth, and convulſive motions.

Signs of the *ſerous* apoplexy are:—A phlegmatic temperament, cachectic habit of body, old age, a more gradual acceſſion, the face pale and tumid, ſmall depreſſed veins, flaccidity and coldneſs of the extremities, an impeded and ſtertorous reſpiration; the pulſe depreſſed, ſlow, ſmall, weak, variable, irregular, and intermittent: vertigo, torpor, and impediment of the ſpeech, often precede. The reader will be pleaſed with the excellent directions given by Burſerius for the treatment of apoplectics in general. "As ſoon as a phyſician is called to a perſon in a fit of apoplexy, he muſt attend firſt to the poſition of the patient; that he be placed in an open airy room; the head elevated, and free from any covering; the feet covered, and every thing about the neck, breaſt, belly, or other parts, looſened: he muſt then learn the temperament, age, and habit of body of the patient; what kind of life he had uſed; what cauſes had preceded; what had given riſe to the diſeaſe; the paſt and preſent degree of ſtrength; laſtly, he muſt endeavour to find out the ſpecies and degree of the diſeaſe, and haſten to adopt a proper method of cure accordingly.

As to the cure of the ſanguineous apoplexy, and concerning veneſection, he ſays:—"Liberali manu, et lato vulnere mittatur [ſanguis] præſertim ſi valde plethoricus ſit æger, aut ætate et viribus viget. Quantitas ejus non facile decerni poteſt, a viribus enim, ætate, habitu, regione, ſexu, et potiſſimum a pulsûs magnitudine et robore, itemque faciei rubore æſtimanda eſt." Of the ſame remedy in ſerous apoplexy he obſerves:—"In ſeroſa apoplexia, an ſanguis mitti debeat, non lævis inter medicos diſceptatio ſæpe exoritur, ad quam dirimendam cum præclariſſimis clinicis hâc uti ſoleo diſtinctione; nimirum, ſi æger bono habitu

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adhuc ſit, ſi vaſorum plenitudo, et ſanguinis rubri aliqua copia ſimul concurrere videantur, quod ex pulſuum magnitudine, victus ratione, et vitæ genere, innoteſcat, venam prudenter et cauté ſecari poſſe, Morgagnio aliiſque non improbantibus exiſtimo, ut una ſaltem ex cauſis cerebrum opprimentibus cito amoveatur. E contrario, ſi apoplexia cum malo corporis habitu conjuncta ſit, aut ei ſupervenerit vera cachexia, et nulla appareat ſanguinis vaſorumque plenitudo, phlebotomiam vitandam eſſe; itemque ſi cerebrum hydrope laboret, in eoque plurimum aquæ ſuſpicari liceat, in vaſis autem parum ſanguinis effæti, ab ea abſtinendum eſſe, quia ab emiſſo ſanguine hydrops non modo confirmatur, verum etiam ſæpe arceſſitur; potiuſque ad corroborantia, tam externa, quam interna, properandum. Nocet quoque venam incidere debilibus, ſenio confectis, diutino capitis morbo jam diu vexatis et prope conſumptis, aut ex aquarum medicatarum largioni potu in apoplexiam prolapſis.

Chap. 6 treats *De Sphaceliſmo Cerebri vel Cephalitide.* Chap. 7. *De Delirio,* in which are deſcribed various ſpecies of phrenitis.

Burſerius has here conſidered *cephalitis* as a different diſeaſe from *phrenitis,* both of which Dr. Cullen and other late writers (perhaps more juſtly) eſteem to be one and the ſame, differing only in degree. The ſame prediſponent and remote cauſes occur in both, and the curative indications are preciſely the ſame.

Chap. 8, Part 2, treats *De Nervorum Diſtenſione et Rigore,* or of convulſive motions, both *clonic* and *tonic.* Under the firſt head come *Epilepſia, Hyſteria,* and *Chorea Sancti Viti;* under the ſecond, *Tetanus,* and its various ſpecies. Epilepſy is thus defined. "Senſuum omnium tam interiorum, quam exteriorum, ſubitanea interceptio, cum violenta alternaque muſculorum prope omnium voluntati famulantium, contractione et relaxatione plus minus perdurans, donec tandem homo ita affectus ad priſtinam integritatem et quietem redeat, quid ei contigerit plane ignarus et neſcius."

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As to the cauſes, he ſays they are in common with thoſe occaſioning other convulſive diſeaſes. According to the ſeat of the cauſe, it produces an idiopathic or ſympathic diſeaſe; a diſtinction of great conſequence in practice. In the idiopathic ſpecies, the cauſe is ſeated in the brain itſelf. On diſſection, the brain has been found callous, or flaccid, or corrupted; or ſerum has been effuſed into the ventricles; ſmall bones adhering to the meninges; exoſtoſes, gummata, caries, and other leſions, have been obſerved, though ſometimes, as Morgagni remarks, no injury can be diſcovered. On the other hand, in *ſympathic* epilepſy, the morbid cauſe is ſituated in a part remote from the brain: hence great difference ariſes according to the different ſeat of the injury; for ſometimes the ſtomach, ſometimes the inteſtines, the uterus, or the extremities, become affected. The author enumerates the various ſymptoms which characteriſe theſe ſeveral ſpecies, and in the cure obſerves, that this muſt be conducted according to our knowledge of the cauſe. If plethora be preſent, it is to be removed by detraction of blood: if a ſerous colluvies, by hydragogues, diuretics, ſudorifics, ſialagogues, bliſters, and other evacuants. He commends the uſe of opium, and quotes the authority of Morgagni in confirmation of the practice. On the remedies ſtyled ſpecifics, he ſpeaks favourably of the *viſcus quercinus*, valerian, cinnabar, mercury, extract of hyoſcyamus, and preparations of copper. The hyoſcyamus is well adapted, it is obſerved, to thoſe caſes which proceed from mental irritations.

The doſe may be one grain three times a day at firſt, and gradually increaſed to a ſcruple, or half a dram. He alſo recommends the *extractum ſtramonii, gr.* $\frac{1}{2}$ *bis die*, gradually increaſing the doſe to fifteen or twenty grains. He has alſo recourſe occaſionally to the other auxiliary remedies; ſuch as muſk, *liquor anodyn. Hoff. ſpirit. C. C. ol. animale. folia et cortices aurant. flores zinci*, &c. After the above enumeration

enumeration of remedies, however, Burſerius juſtly obſerves, that notwithſtanding we are in poſſeſſion of ſo great a number of reputed efficacious remedies, no one can believe the diſeaſe will always yield to them; neither is the ſame mode of cure, nor the ſame remedy, proper in every caſe; even though it be curable.

Chap. 10 treats of *Ophthalmia.* Chap. 11. *De Gravedine, Coryza, et Phlegmatorrhagia.* Chap. 12. *De Narium Hæmorrhagia.* Chap. 13. *De Dolore Aurium et Quibuſdam Auditûs vitiis.* Chap. 14. *De Odontalgia.* Chap. 15. *De Tumore Glandularum Parotidum et Maxillarum*, or what is called by Dr. Cullen, *Cynanche Parotidea.* Of this diſeaſe Burſerius obſerves, that although boys and young people are the moſt frequent ſubjects of it, it ſometimes ſpares no age nor ſex, eſpecially when it is epidemic: in this caſe it is uſually a ſevere diſeaſe, and is accompanied with pyrexia. Very few eſcape its influence. He quotes *Laghi*, who witneſſed it as an epidemic at Bologna, in the year 1753, and who obſerves, that the fever laſted to the 9th, 11th, or 14th day. In ſuch caſes, Burſerius ſays, it is proper to bleed more than once, and his experience is confirmed by *Laghi.* In general, when the fever is ſlight, bleeding may be omitted, the intention being ſufficiently anſwered by mild eccoprotics, diluents, ſpare diet, and emollient fomentations. Sometimes fomentations do not ſucceed: the ſafeſt and moſt eaſy applications are cataplaſms prepared with bread, milk, and the pulp of apples. Topical remedies, which act as reſolvents or diſcutients, are to be avoided; for they either increaſe the pain and tumor, or they occaſion dangerous metaſtaſes. Burſerius, with every other obſerver of this diſeaſe, has remarked the ſingular phenomenon of a tumor ſupervening in the teſticles, upon the receſſion of the ſwelling in the primarily affected glands. Upon ſuch an appearance, the fever ſuffers a conſiderable increaſe: here veneſection muſt be repeated, or immediately had recourſe to, if at firſt it had been omitted; and alſo emollient

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fomentations for the relief of the pain, inflammation and tumor. This ſwelling, as well as that of the glands, is uſually diſperſed without ſuppuration taking place. *Laghi* remarks, that boys before puberty, and old men, were not ſubject to this metaſtaſis; and that women, who, by the by, were leſs frequently attacked, were, upon the decline of the ſwelling in the parotid, ſeized with pains in the loins and pubis, as at the approach of the catamenia, which commonly either ſhewed themſelves prematurely, or, inſtead of them, there ſucceeded a heat and itching about the pudenda. The ſame author likewiſe takes notice, that a vomiting ſometimes happened to thoſe in whom, upon the ceaſing of the ſwelling in the glands, no ſwelling of the teſticles followed. This ſymptom alſo, he attributes to metaſtaſis. Other determinations are remarked by the ſame author, as to the head and the lungs; producing pain in the former, and a cough in the latter, with an increaſe of fever. All agree in the diſeaſe being manifeſtly contagious. Neither *Burſerius* nor *Laghius* makes mention of a metaſtaſis in females to the mammæ.

Chap. 17 treats *De Angina*, and its different ſpecies. The *angina maligna* Burſerius ſuppoſes to have been known to Hippocrates, Aretæus, Aetius, and others of the antient writers, but that it was not accurately deſcribed before the year 1620. On the indication of cure he ſays, ſince this diſeaſe is frequently fatal, eſpecially to infants and children, and paſſes ſo rapidly to a termination, our chief care ſhould be to combat its force as early as poſſible, that the malignant and ſeptic fomites may be expelled, and that corruption and gangrene may be obviated; at the ſame time the vis vitæ ſhould be ſupported. Experience teaches, that large and repeated bleeding is not only injurious, but accelerates the fatal termination. In the beginning, however, before ſymptoms of putridity have appeared, the ſtrength of the body being good, the age vigorous, the habit of body good and plethoric, the fauces much

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ſwelled, and very painful, he is of opinion that blood may be taken away for once, ſparingly and cautiouſly: if not by veneſection, it ought at leaſt to be drawn by cupping and ſcarifying, or by leeches.

In a different condition of the ſyſtem, a different practice muſt be adopted. Emetics are of all remedies the ſafeſt and moſt uſeful in the beginning; but cathartics are not generally indicated or proper. Among antiſeptic and tonic remedies, he enumerates camphire, ſcordium, chamomile, rue, contrayerva, &c. but gives the preference to the cinchona, which he directs to be given early, liberally, and at ſhort intervals. He alſo commends the frequent uſe of detergent and antiſeptic gargles.

The *Angina Trachealis* is ſaid to be confined to infants and children; but erroneouſly, ſince it certainly alſo ſometimes attacks adults, though the diſeaſe is milder in them. It generally prevails epidemically, though it is ſometimes ſporadic. Burſerius gives an accurate and complete hiſtory of the diſeaſe, with the appearances found on diſſection. With regard to the cure, he remarks, that if any hope or chance exiſts of ſaving the patient, it depends wholly on the immediate detraction of blood, which alone, if early had recourſe to, will often cure the diſeaſe. The bleeding may be repeated, if the ſymptoms continue urgent. Leeches are alſo uſefully applied to the neck, and alſo ſcarifications. When this diſeaſe prevailed epidemically at Cremona, no one of the ſick eſcaped, unleſs immediate, large, and repeated bleeding had been inſtituted, together with cupping and ſcarifying upon the larynx: the pediluvium, ſmall draughts of tepid water at ſhort intervals, and a linctus of *ol. amygd.* were likewiſe employed with advantage. Burſerius appears to be rather too fearful of emetics in this diſeaſe: he commends the application of bliſters to different parts of the throat and neck.

The

The 4th vol. is divided into two parts, the firſt of which treats *De Morbis Pectoris*; the ſecond, *De Morbis imi Ventris*. *Phthiſis pulmonalis*, Burſerius, like Dr. Cullen, divides into the incipient and confirmed. The proximate cauſe, he obſerves, may be whatever obſtructs, diſtends, relaxes, irritates, erodes, inflames, or lacerates, the lungs and contiguous parts, ſo that a purulent ulcer follows. This, however, does not eaſily take place, except by the concurrence of prediſponent and occaſional cauſes (*proegumenæ et procatarcticæ* of the ſchools). "*Proëgumenarum* autem præcipuæ ſunt, ætas intra decimum octavum et trigeſimum quintum annum ſpeciatim comprehenſa, tenella pulmonum totius que corporis conſtitutio, mala pectoris conformatio, temperamentum ſanguineum et choleri-cum; plethora, cacochymia multiplex, variæ humorum acritates, atque hereditaria labes. *Procatarcticas* exhibent, graviora animi pathemata, ſtudia immoderata, in primis nocturna, vigiliæ protractæ, prava victus ratio, corporis tam nimia ſegnities, quam nimia exercitatio, venus prematura; aer denſus, humidus et paluſter, aut ſubitas vices ſubiens, aut nimis rarus, levis, montanus; æſtas ſicca, et aquilonia, ſubſequente autumno pluvioſa et auſtrino frigus calori repente ſuccedens; ictus, contuſiones, vulnera, extranea in aſperam arteriam delapſa aut inſpirata; magna vocis contentio, vehemens niſus, ſpiritus diu cohibitus, venena, halitus noxii carbonum, metallici, acidi, nitroſi, et vitriolici; tuſſis, rheuma, catarrhus, et frequentiſſima in his poſtremis venæ ſectionis omiſſio; hæmoptyſis, pleuritis aut peripneumonia imperfecte ſolutæ, aut ſuppuratæ; ſcorbutus, morbus ſcrophularis, lues venerea; hypochondriaca et hyſterica mala; metaſtaſes; conſuetarum evacuationum ſuppreſſio; ſcabies, herpetes, variolæ, morbilli, aliaque cutis vitia retropulſa; ac demum contagium ſi communiori ſententia ſtandum ſit:"—of this opinion are *Morgagni* and *Vanſwieten*.

In the incipient ſtate of phthiſis, the indications of cure, as here aſſigned, are to obviate ulceration, to take off determination

determination to the lungs, remove congeſtions and obſtructions, and to correct any acrimony that may exiſt in the general habit. In the confirmed ſtate, the intention is to deterge the ulcer by abſtergents and expectorants; to obviate putreſcency by acids and vulnerary antiſeptics; and, if poſſible, to heal the ulcer by gently ſtimulating balſamics. The particular remedies adviſed for theſe purpoſes are thoſe in common uſe.

On *Pneumonia* and its varieties the author is particularly full, and his practical obſervations here are amongſt the moſt valuable in the work. Inflammation of the lungs is two-fold; one called peripneumonia, the other pleuritis. Burſerius is of opinion, that *peripneumonia* and *pleuritis* do not differ either in their ſeat or nature, but only in the ſtate or degree of the ſymptoms; and that, in conſequence, the diſtinctions introduced by many writers are of no practical utility, but tend rather to miſlead and perplex the reader. A greater or more acute pain alone in pleuritis diſtinguiſhes it from peripneumonia, and for this difference Burſerius thus accounts. In pneumonia, he obſerves, it is probable that the leſs ſentient parts of the lungs are affected, and therefore the inflammation is more ſlowly excited; but in pleuritis, thoſe endowed with a more exquiſite ſenſe, or with larger nerves, are affected, ſuch as the interior ones; or thoſe nerves are more directly or vehemently irritated or injured by the morbid cauſe. He denies that the pleura is capable of affording that acute pain which is complained of in pleuritis, and therefore it is evident pleura is not the ſeat of it. We learn, he ſays, from repeated obſervations, that when the pleura alone is affected by inflammation, the pain is not ſo acute, nor the reſpiration ſo difficult, nor the cough ſo frequent and troubleſome; the latter even is often altogether wanting. And there are hiſtories of diſſections of bodies, which prove that the pleura had been inflamed when the patients had not complained of any pain. But whatever theoretical diſtinctions

may

may be formed in this caſe, the indications of cure are almoſt the ſame in both, and conſiſt primarily and eſpecially in copious detraction of blood, to be repeated at ſhort intervals, until the hardneſs and activity of the pulſe be conſiderably abated, and until ſigns of reſolution and concoction appear. The reduction of inflammation and ſymptoms of concoction are denoted by a diminution of pain, a freer ſtate of reſpiration, a ſlighter cough, ſoftneſs of the pulſe, diminution of fever, eaſy expectoration, ſediment in the urine, and copious ſweating. In ſome caſes, when general bloodletting cannot be ſafely repeated, he adviſes cupping and ſcarifying, and the application of leeches to the hæmorrhoidal veſſels, eſpecially in perſons ſubject to hæmorrhoids. Local remedies to relieve pain, cupping, and the application of bliſters, are recommended. Concerning opiates in pneumonia, it is obſerved, if the violence of the pain cauſes perpetual watching, and, from conſent of nerves, the heart itſelf becomes ſpaſmodically affected, as is ſhewn by a ſmall, quick, and obſcure pulſe, with very oppreſſed breathing, we muſt have recourſe to anodynes. The author gives this caution reſpecting opium:—When there is ſo great an obſtruction in the lungs, that there may be danger of ſuffocation from ſleep produced by art, or when ſigns of concoction are preſent, with a free and eaſy expectoration; in ſuch caſes we muſt abſtain from opium, or at leaſt uſe it with great caution, for the ſputa may otherwiſe be ſuppreſſed, and the patient ſuffocated.

Chap. 5. *De Hydrope Pectoris, Pericardii, et Pulmonum.* Of the diagnoſtic ſymptoms of hydrothorax the author thus ſpeaks:—"Si empyematis cauſæ defuerint, fuerint vero qui hydropi inducendo aptæ noſcuntur, ſi reſpiratio difficilis jam ſit, aut a quovis corporis motu fiat anheloſa, aut erecta cervice duci debeat; ſi ob ſuffocationis motum ſomnos repente interrumpet; ſi decubitus in alterutrum latus difficilior evadat; ſi fluctuatio quædam in pectoris cavea, procul tamen a cordis regione percipiatur; ſi artuum, in primis inferi-

orum,

orum, aut scroti oedemata, tussis præsertim sicca, sitis, urinæ parcitas concurrent; si latus affectum oedema exterius ostendat, quod interdum evenit, aut scapula et brachium respondens tumeat et torpeat quod frequentius est; profecto non erit, cur certiora de hydrothorace signa desideres."

The titles of the succeeding chapters are—*De difficili Respiratione—De Animi Deliquiis—De Asphyxia—De Cordis Palpitatione—De Cordis Aortæque Polypo—De Aneurismatibus.*

The second part treats—*De dysphagia—De aucto ciborum desiderio et fastidio, præternaturam—De laesa alimentorum coctione de nausea et vomitu—De alvi fluxibus, sive alvi profluviis—De stomachi dolore sive gastrodynia et gastritide—De doloribus intestinorum aliarumque abdominis partium—De alvo adstricta et ileo—De hæmorrhoidum vitiis—De vermibus intestinorum—De tympanitide—De obstructionibus et tumoribus viscerum abdominis—De morbo regio.*

Jaundice, Burserius considers as not always depending on resorption of bile, in consequence of obstruction of the biliary ducts, but as sometimes arising from a depraved state of the blood, serum, or lymph: but this notion, we apprehend, it would be difficult to maintain. The following are laid down as the ordinary remote causes:—A superabundance of bile, from which a part passes into the blood; an acrid state of the bile, by which the biliary ducts are irritated and contracted; some impediment in the trunk or branches of the hepatic ducts, or in the ductus choledochus, obstructing the free discharge of the bile into the intestine: this obstruction may also be produced by viscid bile; by hepatic or cystic calculi; viscid mucus collected in the duodenum; the meconium in children; worms lodged in the ductus choledochus, or a diminished capacity of these ducts, produced by a spontaneous and slow contraction, and rigidity; or from spasm; or by compression from obstructed and tumified adjacent viscera. To the above may be referred, inflammation,

obſtruction, and ſchirroſity, of the liver; hypochondriac and hyſteric ſpaſms; acute and intermittent fevers; acrid and draſtic poiſons; colic pains, eſpecially of the duodenum, and diſtenſion of the colon; a ſedentary, inactive life; frequent ſtooping forwards; ſevere ſtudy; mental agitation, as anger, ſudden terror, fear; ſpare and bad diet; abuſe of ſpirituous liquors; pregnancy.—The treatment, of courſe, will be influenced by the nature of the remote cauſe.

Burſerius mentions the belladonna as having been found efficacious in jaundice, exhibited according to the following formula. ℞. *Ext. Belladonn.* p. 8.—*Pulv. ejus folior*, p. 5. *f. m. pilularis; cujus pilulæ ex ſeſquigrano ſingulæ parantur: datur una pro vice in ictero pertinaci.* The following are the effects ſaid to be produced by this remedy. "Inſignis calor, arteriarum omnium vehementior pulſatio; capitis temulentia; largus ſudor; dejectiones virides; urinæ copia."

The ſubjects of the concluding chapters of the work are, inflammation of the liver, ſpleen, pancreas, omentum, and meſentery; *Nephralgia, Calculi Urinarii—Mictus cruentus et hæmorrhagia Penis—Diabetes, Urinæ incontinentia ejuſque ſuppreſſio.*

From the extracts we have now given, the value of the work before us will, we have no doubt, ſufficiently appear to the reader. The hiſtories of the different diſeaſes are detailed with minuteneſs and accuracy, whilſt the treatment recommended is ſuch as very ample experience and obſervation have ſuggeſted. In his pathology, indeed, the learned author occaſionally adopts more of the humoral doctrines than will in general be approved of by Britiſh practitioners; but this detracts little, if any thing, from the merit of the work, as a body of practical inſtruction; ſince he appears to have taken experience alone for his guide.

We are glad to obſerve, that a tranſlation of this intereſting Treatiſe has been lately undertaken, by Dr.

Dr. *W. C. Brown*, of Edinburgh, who, we have no doubt, will do justice to the work. It will be comprized in five 8vo. volumes, four of which have already been published.

ART. LXXVIII. *Commentaries on the History and Cure of Diseases. By* W. HEBERDEN, *M.D.*

(Concluded from page 313.)

THE titles of the chapters immediately succeeding to those we have already noticed are, *Mammæ; Menstrua; Morbilli; Narium Hæmorrhagia; Nausea; Oculorum Morbi; Ozoena.*

A schirrous lump in the mamma is often a source of great wretchedness to the patient, from the dreadful apprehensions of a future cancer to which it gives rise. It will afford much consolation to such to be informed, on so great authority as that of Dr. *Heberden*, that schirrus more frequently takes place, without being followed by cancer, than is commonly supposed, especially if there have been no previous pain, swelling, or discharge from the nipple. While a small schirrus in the breast continues quiet, it is best, Dr. H. remarks, to forbear all external applications, and additional coverings to keep the breast warmer than usual; nor does he recommend any internal medicines: an exact diet seems to answer all reasonable purposes. Nature will sometimes disperse a schirrous gland in the breast, as he has several times observed, and particularly in one woman, where the tumour seemed to tend to so much malignity, that it was thought advisable to cut it out. Some accidental circumstances delayed the operation for some time, and, in the mean while, the swelling of the breast became less and softer, and continued to do so till it totally vanished.—No credit is given to any remedies for the cure of cancer.

The eyes are ſubject to exceſſive and conſtant pain, without any outward appearance of diſorder: this has been known to laſt for ſeveral days, and conſiderable pain at the bottom of the eye has continued for a year without any ill conſequence; but in general it is a ſtate of the eye much to be dreaded. It has in ſix and thirty hours brought on a dimneſs of ſight, which increaſed to blindneſs; and it has by fits been troubleſome for ſix years, and then blindneſs has come on.

'A violent giddineſs has ſuddenly made a perſon preſbyops, or long-ſighted; and I have known two perſons, who, after having been unable to read without the help of convex glaſſes for ſeveral years, found their ſight come of itſelf to its natural ſtate, ſo that they had no further occaſion for ſpectacles. A giddineſs has inſtantly brought on ſquinting, and made all objects appear double for twenty days, at the end of which the ſquinting and doubleneſs of objects ceaſed. The ſame thing happened to another every morning juſt after waking, and continued for ſome time.'

Palpitatio; Paralyſis; Pectoris Dolor; Pedicularis Morbus; Phthiſis Pulmonum; Pictonum Colica; Pituita; Proſtatæ Schirrus; Pruritus Cutis; Puerperium; Purpureæ Maculæ.

A number of curious and intereſting remarks occur on the ſubject of palſy; ſuch are the following. 'Though paralytic perſons often find the perception of the five ſenſes dull and confuſed, yet I attended one whoſe ſenſe of ſmelling, inſtead of being impaired, became ſo exquiſite as to furniſh perpetual occaſions of diſguſt and uneaſineſs, and from ſome very ridiculous cauſes. A lethargy in another patient was ſucceeded by a ſleepleſſneſs, and at the ſame time all the external ſenſes became more acute: but I do not remember any other inſtances of a palſy in which the functions dependent upon the nerves (if at all affected) were not altered for the worſe; except that the appetite has in ſome caſes become more keen.' No

ſymptom

ſymptom is more common in this diſeaſe than a numbneſs, or ſome degree of a loſs of feeling; and yet a total loſs of it is extremely rare. Out of the very great number of palſies which I have ſeen, there have been only ſeven in which the ſenſe of feeling was annihilated. In three of theſe the feeling was totally gone, while ſome motion remained; and in another it did not return, though ſome degree of motion was reſtored. In a fifth the feeling began to return in half a year. In the two others neither the feeling nor motion were ever, as far as I knew, retrieved*.'

The author's remarks on the treatment of apoplexy are too important to be paſſed over: they admit, indeed, of almoſt daily application in practice. It is probable, Dr. Heberden obſerves, that far the greater number of paralytic and apoplectic patients would recover ſome degree of life and ſtrength by the unaſſiſted efforts of nature. Hence ariſes a difficulty of aſcertaining the real efficacy of any means which may have been uſed.

'Bleeding is one of the firſt means uſually employed for the recovery of an apoplectic perſon; and if he be in the vigor of his age, or very plethoric, and accuſtomed to living in a full manner, it ſeems a very fit remedy, and likely to be highly beneficial. But an indiſcriminate uſe of large and repeated bleedings in all apoplexies and palſies can hardly fail of being often attended with miſchief, ſince the young and vigorous are not the moſt frequent victims of theſe maladies, but rather ſickly children, and the old, the infirm, and exhauſted, in whom the *vis vitæ* wants to be excited rather than lowered, and where bleeding will damp every effort of nature, and irrecoverably extinguiſh the ſmall remains of life, as it is found to do in

* 'Ramazzini mentions a caſe of palſy, in which one leg had loſt all power of motion, but preſerved its ſenſe of feeling; and the other leg was deprived of its feeling, but retained its motion. *De Morb. Artif.* p. 286. E.'

drowned perſons. The practice of taking away blood muſt be founded either in experience, or theory; and if I were to judge from the caſes which have occurred to me, I ſhould ſay that the occaſions where it could be ſuppoſed to do good have been extremely few, and that large bleedings appear to me to have ſeveral times been prejudicial.

'Theory may teach, but will find ſome difficulty in proving, that apoplexies muſt ariſe from a compreſſion of the brain, owing either to a diſtenſion of the blood-veſſels, or to extravaſated blood from their rupture, and that the energies of the nerves can be deadened by no other cauſe beſide fulneſs. The uſual ſubjects of palſies, as before mentioned, do not favour this hypotheſis; and the operation of ſeveral poiſons in diſturbing or annihilating the nervous functions can hardly be accounted for by ſuch a theory: as little can it be reconciled with the gradual manner in which moſt palſies, and many apoplexies, are found to advance, and with the ſtrong diſpoſition to relapſes in thoſe who have been emaciated and broken by many former fits. Some palſies muſt be owing to other cauſes beſides fulneſs: and whatever theſe cauſes be, they may be the only ones of moſt palſies. A rupture of ſome blood veſſels in the brain may be the origin of ſome apoplexies, but probably of few, becauſe theſe can hardly eſcape being inſtantly fatal; and we know that there is a far greater proportion which do not end in preſent death. Some practical authors tell us, they have been glad of finding a fever in a paralytic, or deſirous of exciting one. This but ill accords with the evacuating and cooling regimen. But I muſt own that I have no faith at all in this doctrine; for according to all my experience, the more fever there is, the worſe it always fares with the patient, in every external and internal ail; and the more natural the pulſe is, the more hopes there will be of a proſperous event.'

— A very

A very curious caſe of catalepſy in a young woman is related, which returned once or twice daily, for ſeveral months. It ſerves to verify the moſt remarkable and almoſt incredible ſymptoms which have been aſcribed to this diſorder.

The remarks of ſo accurate an obſerver on *phthiſis pulmonalis* and its treatment muſt needs be intereſting. Reſpecting the queſtion of contagion in this diſeaſe, of the exiſtence of which in other countries people are ſo fully perſuaded, Dr. H. obſerves, that he has not ſeen proof enough to ſay, that the breath of a conſumptive perſon is infectious; and yet he has ſeen too much appearance of it to be ſure that it is not; for he has obſerved ſeveral die of conſumptions, in whom infection ſeemed to be the moſt probable origin of their illneſs, from their having been the conſtant companions, or bed-fellows, of conſumptive perſons.

'Our great experience of this diſtemper has hitherto availed but little in enabling us to find out an effectual remedy. The cure of a diſeaſe inherited from parents, or owing to ſuch a vitiated habit of body as that which is called ſcrofulous, has proved at leaſt as difficult as it might have been expected, and phyſicians have hardly advanced further towards it, than by being able to mitigate ſome of the ſymptoms. Aſſes' milk puts ſome check upon the tendency to emaciate. The dilute acid of vitriol in a decoction of bark is a very effectual remedy of the night ſweats, and, as far as I have ſeen, is perfectly ſafe in all ſtages of this malady. A ſhortneſs of breath is no reaſon againſt uſing either this medicine, or an opiate at bed-time, which is the moſt certain ſoother of the cough, and ſaves the patient from being haraſſed with a reſtleſs night after a weariſome day. Where the pain of the ſide is violent, it will require, and is generally relieved by, taking away four or five ounces of blood. If this pain be rather lingering and teaſing than violent, a ſmall bliſter applied to the part rarely fails of mak-

ing a cure. A diarrhœa has ſeldom reſiſted three or four drops of tinctura opii taken after every ſtool. No medicines need be directed for the hoarſeneſs, ſwelling of the legs, or obſtruction of the menſtrua, which neceſſarily belong to the diſeaſe of the lungs and windpipe, and to the weak, exhauſted ſtate of the patient, and are no otherwiſe to be cured than by curing the principal diſtemper. The fever and the ſigns of inflammation may riſe ſo high as to juſtify the loſing a little blood; but frequent bleedings, though ſmall, have appeared to injure the patient, by conſpiring with the diſtemper to rob him of his fleſh and ſtrength.'

The great ſtreſs is laid on climate, cloathing, and the general management of the ſick. It would be of conſiderable importance to determine whether the opinion expreſſed towards the end of the following paragraph, reſpecting the effects of impure waters, be well founded; for much might be done to prevent the operation of ſuch a cauſe of miſchief.

'In his diet the conſumptive patient muſt abſtain from all wine and ſpirituous liquors, and either wholly, or as much as he well can, from meat. Some there are who are very averſe from vegetables and all farinaceous food, and to ſuch a moderate indulgence of their taſte muſt be allowed, leſt a total abſtinence ſhould weaken the patients more than the diſtemper: the cravings of the appetite, though not entirely to be gratified, yet are not in any illneſs to be wholly diſregarded. The water which is uſed ſhould be the pureſt than can be had, ſuch as ſprings out of the Malvern hills, or diſtilled water. Thoſe waters which are loaded with limeſtone and mineral acids will be extremely pernicious. I have great reaſon to believe, that ſuch impure waters have a ſtrong tendency to obſtruct the lymphatic glands, and make them become ſcirrhous, and ulcered, even in adults, who have no hereditary ſtrumous taint; and I think I have evidently ſeen ſuch diſperſed by the uſe of purer waters.'

In

In the chapter on *colica pictonum* we have very ſatisfactory proof of the poiſonous effects of lead, even when taken in ſmall quantities; a fact which ſome have been hardy enough to queſtion. Three grains of ſugar of lead, taken every day for four days, brought on colic, coſtiveneſs, inquietude, and loſs of appetite. Thirty drops of the ſaturnine tincture taken every day for a month created a colica pictonum, which was long troubleſome, though cured at laſt. The quantity of lead in theſe thirty drops could hardly exceed a grain.

Rheumatiſmus; Semen Virile; Singultus; Sitis; Spaſmus; Sputa Cruenta; Steatomata; Stranguria; Struma; Teneſmus; Teſticulus; Torpor; Tremor; Tuſſis Convulſiva; Valetudo Conquaſſata; Variolæ; Variolæ Puſillæ, or chicken pox.

Amongſt many other valuable remarks on the ſmall-pox are the following. 'I am ſorry to have found,' the author obſerves, 'that this operation has not always ſecured the patient from having the ſmall-pox afterwards, if the eruption have been imperfect without maturation. I attended one in a very full ſmall-pox, which ran through all its ſtages in the uſual manner; yet this perſon had been inoculated ten years before, and on the fifth day after inoculation began to be feveriſh, with a head-ach, followed by a ſlight eruption, which eruption ſoon went off without coming to ſuppuration: the place of inoculation had inflamed, and remained open ten days, leaving a deep ſcar, which I ſaw.

'By ſome accident, moſt of the notes are loſt which had been made during my attendance on a great number of patients in the uninoculated ſmall-pox; therefore I ſhall not attempt to give a full hiſtory of this diſtemper, but confine myſelf to the relating of ſuch obſervations as are juſtified by the few remaining papers.

'Many inſtances have occurred to me, which ſhew that one who has never had the ſmall-pox may ſafely aſſociate,

aſſociate, and even lie in the ſame bed, with a variolous patient, for the two or three firſt days of the eruption, without any danger of receiving the infection. One woman continued to ſuckle her infant for two days after the ſmall-pox had begun to appear upon her; and the child being then removed, eſcaped the diſtemper for that time, but was unqueſtionably capable of being infected, becauſe he catched it about a year and half after.

'Parents have ſeveral times judged it proper, when one of their children has fallen ill of the ſmall-pox, not to ſend thoſe away who had not had this diſtemper, but to let them all continue together in the ſame houſe, and often in the ſame chamber. About the ſixth day after the diſtemper had arrived at its height in the ſick child, the others have for the moſt part begun to complain; and therefore it is probable that this is the time when the diſtemper begins to be communicable; the infection lying dormant about the ſame number of days that it does in thoſe who have been inoculated. But there are much greater varieties in this way of taking the ſmall-pox than by inoculation, accordingly as perſons go more or leſs into the way of receiving the breath of the ſick perſon, or of touching things daubed with the variolous matter. Two children were conſtantly kept in the ſick chamber, and yet did not fall ill till a month after; and there are not a few examples of perſons who have ſeemed to be equally expoſed to the infection, and yet have received it at different times.

'An excruciating pain in the loins has never failed to be ſucceeded by a bad ſmall-pox; and the more violent the pain, the greater has been the danger: it is much ſafer to have it between the ſhoulders; but it is ſafeſt to have none in any part of the back.

'Exceſſive vomiting for the whole time before the eruption is ſeldom followed by a mild diſeaſe; and if the vomiting be continued after the eruption is completed, the patient's life is in great danger, even though

though the ſmall-pox be not confluent, as I have ſeen more than once.'

It is well known that we are chiefly indebted to Dr. Heberden for our knowledge of the chicken-pock: the principal marks by which it is diſtinguiſhed from the ſmall-pox are,

1. The appearance on the ſecond or third day from the eruption of the veſicle full of ſerum upon the top of the pock.

2. The cruſt which covers the pocks on the fifth day; at which time thoſe of the ſmall-pox are not at the height of their ſuppuration. Dr. H. aſcertained, by inoculation, that a perſon is not ſuſceptible of the chicken-pox a ſecond time.

Ventriculi Morbi; Vertigo; Vomitus; Vox; Urina; Uterus.—Such are the ſubjects of the concluding chapters of this excellent volume.

'A diſpoſition to vomiting is very various in different conſtitutions: ſome cannot be made to vomit by any means; others not without extreme difficulty and great pain; while ſeveral are prompted to it upon the ſlighteſt occaſions, and it coſts them not the leaſt trouble. I have ſeen one, who performed a ſort of rumination; and if the food ſtaid too long in his ſtomach, before it was returned for this purpoſe, it became ſour, and made him ſick, and was vomited up.

'Vomiting ſeems ſo contrary to nature, that experience alone could ſatisfy us of the poſſibility of its being continued, as I have known it, two or three times a day for many months, or many years, with little or no ill conſequences to the health. One woman told me ſhe had for thirty years vomited up all ſhe had taken. In ſome caſes, though all the food ſeemed to be vomited up, yet the patients have thriven, and grown fat. In pregnancy, many women have judged that they brought up more than the whole of what had

had been ſwallowed, and that for a conſiderable time, without endangering the life either of the mother or the child.'

ART. LXXIX. *A Continuation of an Account of Indian Serpents; containing Deſcriptions and Figures, from Specimens and Drawings, tranſmitted from the various Parts of India, to the Hon. the Court of Directors of the Eaſt India Company, and publiſhed by their Order, under the Superintendence of* PATRICK RUSSELL, *M.D. F.R.S.* Imperial folio, price 1l. 7s. 1801. NICOL.

WE gave ſo full an account of the firſt part of this very ſplendid work*, and entered ſo largely into the ſubject of the poiſonous properties of this claſs of animals, that it would be ſuperfluous to dwell longer on the preſent volume, than juſt to obſerve, that it contains a deſcription of five ſpecies of the genus *coluber*, and five of that of the *anguis*.

ART. LXXX. *An Inquiry into the Efficacy of Oxygene in the Cure of Syphilis. To which are ſubjoined, a few general Obſervations on its Application in various other Diſorders. By* CHARLES PLATT, *Surgeon to the New Finſbury Diſpenſary.* 8vo, 99 pages, price 2s. London, 1802.

IN the title of his book the author has been guilty of a miſnomer; for we are certainly not warranted, by the preſent ſtate of our knowledge, in ſaying, that the claſs of remedies which have been of late recommended in the treatment of ſyphilitic complaints cure, if they cure at all, by virtue of the oxygene en-

* See Med. and Chir. Rev., vol. 5, p. 478.

tering

tering into their compoſition, and by their imparting this principle to the body. However this be, the author's teſtimony goes unequivocally to prove the inadequacy of the acids, and other analogous remedies, in the treatment of venereal diſorders. The caſes adduced are not numerous, but ſufficiently in point. They contain nothing materially different from a variety of others which have been brought forwards on the ſame ſide of the queſtion, and need not, therefore, detain us.

ART. LXXXI. *Remarks on the Perforation of the Maſtoid Proceſs in certain Caſes of Deafneſs. By* —— ARNEMANN, *Profeſſor of Medicine at Gottingen.* 8vo, 62 pages. Gottingen, 1792.

(From Bib. Germ., tom. 2.)

IN the work before us the learned profeſſor claſſes the different kinds of deafneſs under two general heads; the *idiopathic*, and the *ſympathic*. He takes no notice of congenite deafneſs, nor of that which is cauſed by external violence.

Under the *idiopathic* ſpecies are included, 1. That which is occaſioned by obſtruction of the meatus auditorius. 2. That depending on obſtruction of the Euſtachian tube. 3. Deafneſs produced by ulceration in the organ of hearing. 4. Nervous deafneſs, ſuch as is obſerved in paralytic affections.

The *ſympathic* ſpecies are, 1. Periodical deafneſs, the returns of which depend on changes of the weather, and which is produced principally by a moiſt and cold atmoſphere. 2. That ariſing from diſeaſes which render the hearing more acute, but in which the ſenſibility of the nerves being carried to an unnatural exceſs, gives riſe to a continued noiſe in the ears, the confuſion of which renders the hearing indiſtinct. 3. Sympathic deafneſs, occaſioned by foulneſs of the digeſtive

geſtive organs, the cauſe of which can only be explained by the anaſtomoſes of the auditory with the intercoſtal nerves. 4. Deafneſs proceeding from congeſtions about the head, which, by dilating the veſſels, cauſe compreſſion of the nerves. 5. Injuries of the hearing, occaſioned by metaſtaſes, which give riſe ſometimes to topical affections, and conſequent incurable deafneſs.

Reſpecting the mode of cure applicable in ſome of the idiopathic ſpecies of the diſeaſe, M. *Arnemann* obſerves, that injections, which have been propoſed to be made into the Euſtachian tube, are attended with conſiderable difficulty, and are, in fact, uſeleſs; for he thinks the end may be equally well obtained by ſimply irritating the orifice of the tube, promoting, by this means, the ſeparation and expulſion of any humours that may be ſtagnant there. A ſolution of ſal ammoniac injected into the fauces he has found to cure ſeveral caſes of deafneſs occaſioned by obſtruction of the Euſtachian tube.

An opening into this tube may be made, M. *Arnemann* thinks, by perforating the maſtoid proceſs, and which may be done without hazard, and with a proſpect of ſucceſs in many inſtances. He does not, however, adviſe this operation to be performed in perſons under ſixteen or ſeventeen years of age, becauſe the cells of the proceſs will not, before this period, have acquired their proper form and extent, which determine the ſucceſs of the operation. An advanced period of life is no objection to its performance; but it may fail in conſequence of a morbid condition of the oſſeous cells, which in venereal patients, for example, are often filled with a ſort of matter reſembling chalk. The figure of the cells, too, is naturally very various, and materially influences the event of the operation. In ſome they are irregular, and exceedingly ſmall; in others they are regular and capacious. In general, the more rough and unequal the maſtoid proceſs is externally, the greater reaſon there is to

ſuppoſe

ſuppoſe the cells are large, and afford a more favourable prognoſtic. The cells are largeſt on the internal ſide of the proceſs, and particularly thoſe of the left ſide: hence, when there is room for choice, the left maſtoid proceſs ſhould be preferred for the operation.

Anatomy has ſhewn, that a direct communication exiſts between thoſe cells and the internal cavity of the ear: but this may be obſtructed, and thus prevent the operation from being ſucceſsful. When the patient has already an ulcer behind the ear, this place ſhould be choſen for the operation. The moſt favourable part for perforating the bone is towards its middle, and a little forwards and inwards. The part is to be laid bare by an inciſion about an inch in length; not carrying it too near the external ear, for fear of wounding the poſterior auricular artery; the bleeding from which, however, would be attended with no danger. The bone is to be perforated with an inſtrument of a ſharp-pointed conical figure: the entrance of it into the cells of the proceſs will be readily felt by the operator. It muſt be done, however, with ſome precaution, as the lamellæ of the bone are ſometimes extremely thin. Some injections may then be thrown in, but with much gentleneſs, to avoid injuring the tympanum.

The caſes in which advantage may be hoped for from this operation, according to M. *Arnemann*, are the following.

1. Where the deafneſs is complete, or where it is gradually increaſing, and has reſiſted other remedies. 2. Where the cells of the maſtoid proceſs contain purulent matter, and are in a carious ſtate. 3. Where a congeſtion of the natural mucus of the internal cavity of the ear takes place, occaſioning obſtruction. 4. When the deafneſs is attended with pain, and a conſtant ringing in the ears, ending gradually in total loſs of hearing. 5. Laſtly, Where the Euſtachian tube is obſtructed by viſcid mucus, or other matters, which may be removed by injections.

ART. LXXXII. *Observations on the Marsh Remittent Fever, more particularly in regard to its Appearance and Return every Autumn, after the Inundation from the Sea, on the 1st of January, 1779, and the five succeeding Years, at Lynn, and its Environs. Also, on the Water Canker, or Cancer Aquaticus of Vanswieten; with some Remarks on the Leprosy. By the late* ROBERT HAMILTON, *M.D. of King's Lynn, in Norfolk. F.R.S. E., &c. with Memoirs of the Author's Life.* 8vo, 171 pages, price 4s. London, 1801. MAWMAN.

THE author of the work before us is known to the public by a paper published in the Transactions of the Royal Society of Edinburgh on the *Mumps*, a disease which at that time had been little noticed; by a Treatise on Scrophula, published in London in the year 1791; and by various detached papers published at different times; all of which indicate him to have been a man of good observation and sound judgment. His opportunities for observing the diseases which make the subject of the present volume were great and extensive, as he continued to practise for a long series of years in a situation in which they were frequently and copiously produced. The result is such as might have been expected from such a combination of circumstances.

The remittent, commonly called the autumnal bilious fever, is endemial in the neighbourhood of *Lynn*, in *Norfolk*, a low and marshy district, frequently covered by inundations from the sea, as well as by floods, the consequence of heavy rains. The waters thus becoming stagnant, give rise to the putrefaction of vegetable and animal matters, and exhale effluvia about the end of the summer, which are often intolerably offensive and pernicious. The remittent fever, as might have been expected in such a situation, makes its appearance, in a greater or less degree, every

every autumn, and is more or leſs epidemic, according as the preceding ſummer has been dry or wet. If a very wet winter and ſpring are ſucceeded by a very hot and dry ſummer, and in which the ditches and marſhes are nearly dried up, the diſeaſe is very generally epidemical, and ſpreads widely around. It moſt commonly appears about the middle of Auguſt, and laſts till the ditches are filled with water, and the marſhes ſomewhat covered; which, with a froſt, uſually puts a period to it in that form for that ſeaſon, for it then generally changes to the type of a genuine intermittent, The author thinks it to be the ſame diſtemper with the bilious remitting fever of the Netherlands, deſcribed by Sir *John Pringle* and other army phyſicians; with the fever of Minorca, as deſcribed by *Cleghorn;* with the marſh remittent of Bengal and the *Eaſt;* and, laſtly, with the yellow fever of the *Weſt Indies.*

The diſeaſe in the neighbourhood of *Lynn* was particularly prevalent in the autumn of 1779 and the five ſucceeding years, and was unuſually violent and fatal. The following were the general appearances, as deſcribed by the author.

'The attack of this diſtemper was marked by a chilneſs, ſometimes by a ſhivering like the cold ſtage of an intermittent; and this rigour was of different degrees of violence and duration in different ſubjects, and often accompanied with wandering ſpaſmodic pains in the back and extremities. This was ſucceeded by an intenſe burning heat in the trunk of the body, particularly about the gaſtric region and the hypochondria, without any remarkable thirſt, whilſt at the ſame time the extremities were cold to the touch and feeling of the patient; the head ached violently, the pulſe was low, irregular, and very quick, and the whole was accompanied with anxiety, and great, indeed moſt extraordinary, proſtration of ſtrength. This was generally attended with a vomiting of viſcid matter, acid, offenſive to the ſmell, and mixed with

bile, either yellow or green; often of a very dark green colour, approaching to black; and ſometimes the matter thus ejected was black. There was moſt commonly a moſt profuſe purging alſo, of the ſame kind, exceedingly fœtid, and ſo acrid as to excoriate the parts about the anus; in ſhort, theſe two diſcharges conſtituted a ſymptomatic cholera morbus.

'Thoſe ſymptoms continued with great violence for twelve or fourteen hours before any remiſſion took place, when a gentle ſweat broke out, the fever abated, and the vomiting and purging leſſened, or entirely ceaſed, as the ſweating increaſed; but this remiſſion was but of ſhort duration, perhaps three or four hours, when the chilneſs and exacerbation of fever recurred with additional violence, and the ſame train of ſubſequent ſymptoms. The tongue had a moſt ſingular appearance, and indeed was ſo characteriſtic of the diſeaſe, that the bare inſpection of it was ſufficient to diſtinguiſh its exiſtence. It was at firſt moiſt, with a thin white mucous covering, which in a few days became gradually thicker, forming a coat much reſembling thin wet leather ſtretched over it; and as the diſeaſe advanced ſome twelve or more days, it turned brown in the middle, and in many black, in the laſt ſtage of the diſtemper, but never very dry and parched.

'If this diſeaſe was neglected in the beginning, which was often the caſe, on the ſuppoſition of its being a common intermittent, and ſuffered to go on without any medical help; or indeed if it was miſmanaged; if the patient had the good fortune to eſcape being carried off by the violence of the ſymptomatic cholera, the remiſſions became ſhorter in duration every return; the vomiting and purging abated, or nearly ceaſed; a ſweat appeared in the place of them, often very profuſe, without giving the ſmalleſt relief, but, on the contrary, contributed to ſink the patient; the burning heat of the ſkin continued, the head-ach increaſed, a delirium came on, the remiſſions were

ſcarcely

ſcarcely to be diſtinguiſhed, the pulſe gradually became weaker, a ſtupor appeared with ſubſultus tendinum, or an univerſal ſpaſm of the muſcles, the patient ſunk under the colliquative ſweat, and died comatoſe.'

Although this was the general appearance of the diſeaſe, it was nevertheleſs ſubject to ſeveral varieties, and in many inſtances put on the form of continued, putrid, malignant fever. 'This was particularly the caſe,' the author obſerves, 'in 1782 and 1783. In both theſe autumns, I ſaw ſome in the town, but more in the country, to whom I was called in at the cloſe of the diſeaſe, where the putrefaction was ſo great, and the blood ſo much diſſolved, that it paſſed unaltered with the ſecretions through ſeveral of the emunctories: the urine, which at firſt was only tinged, looked at laſt to conſiſt almoſt wholly of blood; the ſaliva was bloody; the diſcharges by vomiting and ſtool were mixed with blood. In ſhort, blood ſeemed to have tranſuded into every cavity from the ſecreting capillary arteries. The hæmorrhages from the noſe (which did not appear to come from any one open veſſel, but from the whole ſurface of Schneiders membrane) contributed to ſink the patient; and thoſe patients retained their ſenſes to the laſt.

'Many were covered with brown, red, or purple petechiæ, at the ſame time; and, if I may be allowed the expreſſion, ſunk under a truly gangrenous fever*. Some young people who had delirium, and a burning ſkin, had the nervous ſyſtem ſeized with ſubſultus, or univerſal ſpaſm, coma vigil, died raving mad;

'* I viſited a miller at Litcham, in October 1782, whoſe houſe ſtood on the common, in a low and very moiſt ſituation: he had been ill of this fever a week. I found him covered with purple ſpots: his ſpittle, urine, and ſtools, were tinged with blood; he was perfectly ſenſible, and died two days after I ſaw him. His brother, who came after his death to take care of the buſineſs, caught the infection, and died in the ſame ſtate. A maſter tanner at Lynn, a ſhopkeeper at Crinſtone, and ſeveral more, died in the ſame way; and theſe were all attacked in the beginning with the reigning epidemic, the remittent fever; but I had not an opportunity of attending through the courſe of the diſeaſe in moſt of them, but only viſited them once towards the cloſe of it.

mad; and some had petechiæ without hæmorrhage. More old people died than young, and those were highly putrid: the halitus from their breath was horribly offensive, and highly infectious. Their throats were crusted with aphthæ, their tongues covered with a brown or black fur, and the teeth also; yet some with even these bad symptoms recovered. Very few recovered when the disease was so long protracted, after changing its type, till the delirium, subsultus, stupor, or a coma vigil, sunk pulse, colliquative sweats, &c. took place; in short, when the fomes morbi had attacked the nervous system, few or none recovered.'

The author seems to entertain no doubt that the disease, in many instances, spread by contagion; and that it really did so is rendered exceedingly probable by the history here given. This opinion, indeed, is contrary to that which at present prevails on the subject, and which endeavours to separate the *remittent* from the *gaol* or *hospital* fever, assigning contagion to the latter only; but the truth of this is at least questionable; and the more so, when the contradictory sentiments entertained on this point, by the late writers on the West India fever, are taken into consideration. Observations made with more accuracy and less prejudice are still wanting to determine this important point.

As the general cause of the disease, the author assigns marsh miasmata, taken into the stomach along with the saliva, acting on that organ, and on the whole intestinal canal, being afterwards carried by the absorbents into the circulatory system, and producing the general state of fever, with the ordinary symptoms. That this was the route and mode of action of the morbid cause, he supposes to be evident from the great efficacy of emetics early administered, and which frequently cut short the disease altogether, or carried it off in the space of a very few days. Admitting, however,

ever, the utility of vomiting in this caſe, the good effects of it might be explained on other principles.

'The beſt mode of treatment was,' the author obſerves, 'when medical aſſiſtance was called for early in the diſeaſe, to give an emetic without delay, which, with the addition of ſome gentle purgative, emptied the alimentary tube ſpeedily of the foul ſaburra; and when the common purgative did not act with ſufficient promptitude and efficacy, the addition of calomel became of the greateſt uſe, becauſe the ſtimulus of this medicine, on the beginning of the lacteals and lymphatics opening into the inteſtines, might probably not only prevent the poiſonous miaſms from being abſorbed, but might actually, by cauſing an inverted action in thoſe veſſels, make them regurgitate the poiſon that entered but a little way back into the cavity of the inteſtine, from whence by the power of the purgative it was carried downwards, and expelled with the fæces. Whether this conjecture is well-founded or not, ſomething very like it happened from the advantages derived from the addition of calomel. Clyſters were found of the greateſt uſe when the purgatives did not readily act in promoting their operation. If the emetic tartar was employed by itſelf, or in addition to ipecacuanha, both evacuations were generally brought on: but the addition of vitriolated magneſia (ſal. cathart. amar.) to the emetic tartar acted more upon a certainty in procuring both diſcharges, with that promptitude which the nature of the diſeaſe required. James's antimonial powder was ſometimes uſed with the ſame view, but experience ſhewed that it was not ſo much to be depended on as emetic tartar.

'After the ſtomach and inteſtines were well emptied, an opiate was of great ſervice in quieting the commotions induced by either the ſpontaneous or the artificial diſcharges; the ſtomach became ſettled, and acquired the power of retaining nouriſhment and medicines. About this period the patient was probably

in a ſweat, and under the remiſſion of the fever: when this was the caſe, the Peruvian bark, as no time was to be loſt, was inſtantly exhibited, and with great freedom: one drachm or more of the powder was given every hour, or oftener, if the ſtomach would bear it. If the powdered bark diſagreed, a ſtrong decoction, with or without the tincture of the Peruvian bark, was given in its ſtead. If the ſtomach retained theſe medicines, certain benefit almoſt immediately enſued. If it rejected the firſt two or three doſes, the patient was urged not to be diſcouraged, but was preſſed to perſevere in taking the medicines till they did ſtay, and he was generally rewarded for his perſeverance by loſing his diſeaſe. In order, however, to promote the retention of the bark on the ſtomach, an opiate and the fixt or volatile alkali were added; and the doſe either given in the ſtate of effervescence, with the addition of lemon juice at the inſtant of its exhibition, or the acid drank with water after it. A certain portion of wine was allowed in various mixtures for drink, a liquid diet of the eaſieſt digeſtion directed, and oranges and lemons, with all the fruits in ſeaſon, were uſed with freedom. The wines employed were hock, mountain, port, madeira, &c. according to the nature of the caſe and pecuniary circumſtances of the patient. If this plan was ſtrictly attended to, the patients generally got well in a few days. But it muſt be underſtood that the ſucceſs depended upon the early application of medical aſſiſtance, and of the treatment of the ſick's paſſing immediately under the phyſician's eye, or that of an intelligent and well-informed apothecary; which ſeldom could take place any where but in a large town, where there was a conſtant daily, and almoſt hourly, attendance given. Far different was the lot of thoſe whoſe abode was in the country, and diſtant from ſuch medical help. In the country it was to be lamented that medical aſſiſtance was ſeldom thought of at the firſt onſet, and the diſeaſe had often gained too ſerious a footing

a footing in the patient's habit before help was called for, and therefore too late to put the neceſſary precautions for ſtopping the progreſs of the diſeaſe in execution.'

'When it became evident, by the train of ſymptoms, that the poiſonous miaſmata had been abſorbed into the habit, had attacked the brain and nervous ſyſtem, and injured the vital powers, the treatment was varied according to circumſtances. If the violent head-ach prevailed; if delirium, coma vigil, or ſtupor and ſubſultus tendinum, came on; if the pulſe became feeble and ſinking, bliſters were extenſively employed: camphire and ſerpentaria were added to the Peruvian bark; opiates, to relieve the coma vigil and ſpaſm; and large doſes of muſk, with a liberal uſe of wine, to relieve the ſunk pulſe, ſubſultus, &c. were employed. But upon bliſters, the Peruvian bark, and wine, the chief dependance was placed; and when the bark could not be conveniently taken by the mouth, it was injected per anum; and very young ſubjects, who could not or would not be prevailed on to ſwallow the remedy, were kept in a bark jacket, which proved very advantageous. Small quantities of emetic tartar added to the bark in the beginning was of benefit: it never ruffled the patient by its emetic property; produced a ſtool or two; promoted a free perſpiration, when the ſkin was contracted and arid; and certainly contributed to leſſen the exacerbations of fever, and lengthen the remiſſions. But it muſt be underſtood that it was not indiſcriminately employed, at leaſt under my direction, in all caſes, but was confined alone to thoſe whoſe ſkin was dry and rigid, and little or no ſecretion by ſweat in the early part of this variety; it therefore required attention and great judgment in its exhibition, becauſe, as the diſeaſe advanced, the patients ſweated often ſpontaneouſly in a moſt profuſe manner, as we have obſerved already, without its affording the ſmalleſt advantage: on the contrary, this colliquative diſcharge contributing

to ſink them, therefore an artificial quantity of it muſt haſten the cataſtrophe, and for this reaſon ought to be avoided as pernicious in the more advanced periods of the diſeaſe, under this circumſtance. The volatile alkali was alſo joined to the bark with good effect; vegetable acids, cool drinks of the antiſeptic kind, freely uſed; freſh air often renewed, and meliorated by the addition of the aerial acid (or fixed air) extricated from chalk by vinegar, diffuſed through the chamber, as a means of attempting to obviate that tendency to putrefaction which ſo rapidly took place in this period of the diſeaſe.

'When, among the other varieties of change of type, this diſeaſe had taken on a malignant, putrid form, in which the blood appeared to be broken and diſſolved by a putrefactive proceſs of a truly gangrenous tendency, readily diſcovered by the ſymptoms: when brown, red, or purple petechiæ appeared, with burning heat, dry ſkin, accompanied with violent pains in the head, or back, and extremities: when hæmorrhages and bloody ſecretions appeared every where, the antiſeptic regimen in its fulleſt extent was inſtituted; opium, as one of the beſt of that claſs (excluſive of its ſedative powers), was freely uſed; the Peruvian bark was copiouſly employed in every poſſible form; tinct. roſar. with wine, was uſed as common drink, and vinegar whey; the vegetable and mineral acids were taken in large quantities; every acid fruit that could be procured were in their turns uſed. Fixed air, as well internally in different vehicles, with medicines, as diffuſed through the atmoſpheric air, was fully employed, and a free ventilation conſtantly was attended to: frequent changes of every kind of linen, and even change of bed and apartment, whenever it could be done, took place. All thoſe means of adminiſtering relief to the ſick were employed with the moſt ſedulous attention; but, with regret I relate it, too often without ſucceſs; and the patients fell victims

tims to this horrid diſeaſe, in ſpite of all our endeavours.'

The next ſubject of Dr. Hamilton's animadverſion is what he terms, after *Vanſwieten, water canker**. This diſeaſe, though, from the hiſtory here given, it appears to be a very formidable and dangerous one, has been but little noticed, particularly in this country. From its frequent appearance in Lynn and the environs, it appears to be endemial in low and marſhy countries, as it is unknown in more elevated ſituations, even at the diſtance of a few miles only from the former place. The following is the author's deſcription of this horrible malady.

'The firſt ſymptom of the approach of the water canker is an inflammation, without any ſwelling, of a remarkable bright pale red colour, on the ſharp edge of the gums next the teeth, ſometimes in the upper, ſometimes in the lower jaw, very rarely in both at the ſame time. It is moſt commonly before, at the bottoms of the dentes inciſivi, but ſometimes it appears on the ſides at the molares. This inflammation generally extends along five or more teeth, and the colour of it is ſo remarkable, that it is readily known and diſtinguiſhed from common inflammation, and its conſequences dreaded by people converſant with the diſtemper. The inflamed edge of the gums ſoon becomes ulcerated, in nearly a ſtraight line, as far as the inflammation reaches, as if the edge had been cut off by a ſharp inſtrument. The ſame kind of inflammation continues on the outer edge of the ulceration; and within that towards the teeth, there is either a white or an aſh-coloured ſlough extending from one end to the other, which is a real gangrenous eſchar. The breath begins to be very offenſive, and a diſcharge of a very fœtid ichor mixed with ſaliva flows plentifully from the mouth. The ulcer ſpreads

* Cancer aquaticus. Vide Com. in Boerhaav. Aph., tom. 1, § 423 et 432.

daily,

daily, the gums being gradually eaten, as it were, away by the corrosive ichor. The discharge increases, and becomes more offensive; and the eschar becomes deeper, and is frequently coming away, and is succeeded by a fresh one. The ulcer bleeds on the slightest touch, and small coagula forming are detained on different parts of the surface, covering and disguising the slough. Thus does the disease continue its ravages until the gums are destroyed completely, and, extending to the lining of the mouth, the neighbouring soft parts are involved in the destruction. The teeth now drop out, and happy is it for the patient if the depredation stops here, as their loss, if the patient is very young, may be supplied: but this is not often the case; for the secondary teeth next fall victims to its virulence, and with them the alveolar processes. Even cruel as this evil is, it would here be comparatively tolerable, could a stop be now put to the ravages of this rapacious enemy, which is very seldom to be effected: for now begins a scene shocking to humanity.

'The disease seeming to have acquired force in proportion to the extension of the ulcer and the destruction it has occasioned, the fœtor becomes intolerable; the discharge, then glazy and caustic to the highest degree, is prodigious in quantity, and corrodes wherever it falls. The bones, now a prey to the distemper, are as readily destroyed, indeed really dissolved (no vestige of the softer ones remaining), as the soft parts; and the destruction daily goes on, exhibiting a most shocking spectacle, until death happily puts a period to the pains and existence, at the same time, of the miserable patient, which generally happens in a few days after the bones are affected.'

The local affection is accompanied with symptoms of fever and great general irritation; and these come on so early, that the author is unable to determine whether they precede or follow the appearance of the ulcers.

Young

Young ſubjects, particularly children, are chiefly afflicted with this diſtemper, and females more frequently than males. Bad caſes are exceedingly rare after the age of ſeven years. It does not appear to be in any degree contagious. It frequently ſupervened to ſmall-pox and meaſles. The diſeaſe did not in general prove fatal, where the patients were comfortably lodged, and provided with all the conveniencies and neceſſaries of life. Its fatality was chiefly confined to the children of the poor, living in damp rooms on the ground floor, without ſufficient food, cloathing, or ventilation.

In the treatment, the moſt uſeful external application appeared to be the muriatic acid mixed in an equal proportion with *mel roſarum*, and applied lightly to the ulcerated parts by means of a hair-pencil. The internal remedies employed were ſuch as are generally uſed in putrid fevers, and above all, the Peruvian bark, in large and frequently repeated doſes; and the ſame applied in the form of glyſter.—The author conſiders the water canker as nearly allied in its nature and mode of cure to ſea-ſcurvy; a diſeaſe he muſt have been well acquainted with, from his having practiſed for many years as a navy ſurgeon.

ART. LXXXIII. *A Collection of Papers, intended to promote an Inſtitution for the Cure and Prevention of infectious Fevers in Newcaſtle and other populous Towns*, &c. Part II. *By* JOHN CLARK, *M.D.* 12mo, 230 pages. Price 3s. London, 1802. MURRAY and HIGHLEY.

A PRETTY large ſhare of the preſent *Collection* is of a controverſial nature, and on that account not neceſſary to be particularly noticed here. Very ſtrong additional teſtimonies, to thoſe before furniſhed, are given in favour of the ſafety and propriety of annexing fever-wards to infirmaries and hoſpitals in general;

general; and the arguments are, no doubt, calculated to produce a conſiderable effect on the minds of thoſe to whom they are particularly addreſſed, the governors of the Newcaſtle Infirmary; many of whom appear to have acquieſced, in a great meaſure, in the author's ſentiments on the ſubject.

The ſupplement contains a number of valuable remarks on hoſpital arrangements in general, with plans for their improvement, and for that of medical ſcience itſelf. In regard to the latter object, Dr. Clark enforces the neceſſity of an accurate regiſter of the caſes which occur being kept; and recommends the adoption of various other means favourable to the extenſion and improvement of the ſcience. Theſe are points of great magnitude, and which ought to be particularly attended to in public inſtitutions. They have in general, however, been unaccountably neglected or overlooked.

ART. LXXXIV. *Remarks on the Neceſſity and Means of ſuppreſſing Contagious Fever in the Metropolis. By* C. STANGER, *M.D. Greſham Profeſſor of Phyſic, and Phyſician to the Foundling Hoſpital.* 18mo, 47 pages. Price 1s. London, 1802. G. PHILLIPS.

THE nature and objects of this ſmall pamphlet are ſo nearly akin to thoſe of the one above noticed, and have ſo often before engaged our attention, that a very brief mention of it is all that can be neceſſary. The ſpeedy ſuppreſſion of contagion, if not its final extinction, is no longer problematical; and, happily for mankind, the means of effecting it are as ſimple as they are efficacious. Early ſeparation of the infected, with a proper regard to cleanlineſs and ventilation, enſure the attainment of this important object. It is only neceſſary that the eyes of the public at large be ſufficiently opened on the ſubject, to induce them to lend

lend a willing aid to the faculty in accompliſhing ſo important a purpoſe. The arguments here employed are ſtated in a manner ſo forcible, as ſtrongly to impreſs their truth on the reader: it is to be hoped, therefore, that they will be very widely circulated. The aim of the author has been to point out, in a clear and conciſe manner, the cauſes, the conſequences, and the means of ſuppreſſing febrile contagion, confirming his arguments by reference to the beſt authorities.

ART. LXXXV. *A Treatiſe on the Cow-pox; containing an Enumeration of the principal Facts in the Hiſtory of that Diſeaſe; the Method of communicating the Infection by Inoculation; and the Means of diſtinguiſhing between the genuine and ſpurious Cow-pox. Illuſtrated by Plates. By* GEORGE BELL, *Surgeon, Edinburgh.* 12mo, 115 pages. Edinburgh, 1802. Price 3s.

AFTER enumerating the well known facts reſpecting the vaccine inoculation, the author of the pamphlet before us is at much pains to diſtinguiſh the *genuine* from the *ſpurious* forms of the diſeaſe; and has pointed out ſeveral varieties of the latter, which, he thinks, he has been able to mark from his own obſervation. The firſt of theſe is, where the matter for inoculation has been taken either from the ſpurious cow-pox, or from a genuine puſtule at too late a period. In this caſe, he remarks, the inflammation is apt to take place early, even in the courſe of a few hours, and on the next day the pimple is as far advanced as the genuine puſtule would be on the fourth day. The puſtule fills with purulent matter about the fourth or fifth day, and then burſts and heals like a common pimple.

The ſecond variety of ſpurious cow-pock here deſcribed is referred to the having kept the genuine virus

too

too long before inſerting it. Here the inflammation is ſaid to be ſcarcely perceptible till the third day, advancing ſlowly till the eighth or ninth, and then dying away completely.

Another variety ariſes from inoculating with genuine matter preſerved on a ruſty lancet. In this caſe, the puncture is ſaid to become much inflamed on the ſecond day, the inflammation increaſing till the fifth or ſixth, when purulent matter is formed. A double areola takes place on the ſixth or ſeventh day, but is irregular in ſhape; and the fluid contained in the puſtule is viſcid, yellow, and opake. This matter, the author obſerves, may either give the real diſeaſe, or the ſpurious, or it may not infect at all.

The author has obſerved ſtill another variety of ſpurious cow-pock, very ſimilar to the real diſeaſe, but which does not ſecure the conſtitution from ſmall-pox. This is occaſioned by rubbing off the head of the puſtule on the fifth or ſixth day after inoculation, by which the vaccine virus, we are told, eſcapes as faſt as it is formed, inſtead of being abſorbed, and taken into the conſtitution. An areola in this caſe is formed, but it is irregular and jagged, and terminates abruptly.

Some varieties even of the genuine cow-pox, it is ſaid, may be miſtaken for a ſpurious diſeaſe; as when the matter has been long kept. In this caſe all the ſtages of the diſeaſe are proportionally backward in their appearance.

If the varieties which have now been enumerated are not in a great degree fanciful and imaginary, they form as ſtrong an objection to the new practice as can well be conceived, ſince it would be abſolutely impoſſible to ſay when the patient was really ſecure from ſmall-pox; and the author allows, that 'all who have had ſufficient experience know, that there is *no one certain criterion*, applicable to every caſe, by which it can be aſcertained that the diſeaſe has pervaded the conſtitution.

conſtitution.' We are not, however, diſpoſed to admit the diſtinctions here made, and conſider them as altogether refinements of the author. The external characters of the cow-pock puſtule are ſufficiently marked to warrant, where they are preſent, a certain prognoſtic: and were the ſmall-pox really to take place after thoſe appearances, it would be ſtrictly philoſophical to conſider ſuch inſtances as fair exceptions to the preventive power of the vaccine diſeaſe; exceptions that poſſibly may turn out to be more frequent than the ſanguine admirers of the new practice are at preſent inclined to ſuſpect or admit.

From the account here given, it would ſeem that no teſt, ſhort of variolous inoculation, can give complete ſecurity to the mind of the patient or practitioner. Yet the author aſſerts (p. 80), inconſiſtently enough, that no one in the practice of vaccine inoculation, if he duly attends to the different ſtages of the diſeaſe, can ever heſitate to ſay whether or not the infection has taken place.

ART. LXXXVI. *Practical Obſervations on the Inoculation of the Cow-pox, pointing out a Teſt of a conſtitutional Affection in thoſe Caſes in which the local Inflammation is ſlight, and in which no Fever is perceptible: illuſtrated by Caſes and Plates. By* JAMES BRYCE, *Surgeon, Edinburgh,* 8vo. 236 pages. Price 4s. Edinburgh, 1802.

THE teſt here propoſed, as a means of aſcertaining the proper conſtitutional affection to have taken place in caſes of vaccine inoculation, is founded on the known fact reſpecting ſmall-pox; viz. that if a perſon be inoculated with variolous matter, and the operation be repeated every day till the fever induced by the firſt inſertion ſupervene, all the other punctures will advance with increaſing rapidity; ſo that

that the puncture which has been made only for twenty-four hours will at this period equal in maturity the original one made eight days before. This idea Mr. Bryce applied to the vaccine diſeaſe; and he found that if a ſecond vaccine inoculation was performed as late as the fifth or ſixth day, it was ſo much accelerated in its progreſs, as to have the areola formed within a few hours after the firſt, increaſing with its increaſe, and fading as it faded. This ſecond inoculation he alſo found runs a parallel courſe with the firſt, whether there be general fever or not; and this is undoubtedly the caſe in which a criterion for determining conſtitutional affection is moſt wanted.

The moſt proper time, the author obſerves, for performing the ſecond inoculation, is about the end of the fifth or beginning of the ſixth day from the firſt inoculation. If it be delayed beyond the ſixth day, the affection produced by it will be very indiſtinct, and of ſhort duration; and, if performed at an earlier period, the contraſt between the progreſs of the two infections, with regard to duration, will not be ſo great as may be thought neceſſary. If the ſecond inoculation is not accelerated, but proceeds in the uſual courſe, it proves that the firſt was not adequate to produce the conſtitutional effect, and therefore the third ſhould be performed as a counter-proof of the efficacy of the ſecond.

This teſt, it may be remarked, is leſs deciſive than might be at firſt ſuppoſed; for it is allowed that in the ſpurious cow-pock, as it is called, there is really a conſtitutional affection often preſent.

ART. LXXXVII. *Medical and Phyſical Journal, Nos.* 49 *and* 50. London, 1803. PHILLIPS.

THE firſt article in the preſent numbers of the *Journal* contains obſervations on ſome ſelect ſubjects

jects in ſurgery; by Mr. *W. Simmons*, of *Mancheſter*.—The author wiſhes to ſubſtitute the term *contuſion* for *concuſſion*, as applied to injuries of the brain. He obſerves, juſtly, that the ſimilarity of the occaſional cauſe, the alteration of ſtructure in the part, and other circumſtances, mark the correſpondence between an external contuſion and what has been denominated a concuſſion of the brain. The treatment found by experience the moſt appropriate likewiſe juſtifies the innovation here adopted. Accuracy of language, undoubtedly, is a material ſtep towards accuracy of ideas.

Mr. *S.* ſpeaks in favour of the operation of couching in caſes of cataract, and gives it the preference to extraction, on account of its greater ſimplicity; whilſt his ſucceſs in this mode of operating, he obſerves, has been as great as could have been expected in any. Allowing, however, couching to have ſome advantage in point of ſimplicity and facility of performance, it is yet unqueſtionably productive of greater derangement of ſtructure in the globe of the eye than extraction is, and, on this account, leſs likely to be attended with ultimate ſucceſs. In caſes where the cataract is ſoft and adherent, and the anterior part of the capſule opaque, Mr. Simmons recommends paſſing the needle through it into the anterior chamber, for the purpoſe of dividing the capſule horizontally, which may be done without wounding the iris. The ſevered edges retract from each other, ſo as to admit the rays of light to the bottom of the eye.—A caſe is ſubjoined where, on account of a tumour, the globe of the eye was extirpated by exciſion.

The ſame gentleman propoſes a mode of practice in ſtiffneſs of the joints ſucceeding to diſlocations, which appears likely to be of much utility on ſome occaſions. This ſtiffneſs, he ſuppoſes, may be frequently owing to adheſions, the conſequence of inflammation, forming within the joint, or exterior to the capſular ligament, or both; or from like adheſions of the muſcles and tendons paſſing over the joint. In ſuch caſes, he recommends a full extenſion of the joint, by which

the newly-formed membranes will be ruptured, and the flexibility reſtored. This mode of treatment he has ſeveral times adopted with ſucceſs.

Mr. S. alſo recommends muſk and volatile alkali in mortification; and remarks, that they ſucceeded where opium, wine, brandy, æther, bark, &c. in full doſes, had failed:—but might not the benefit in ſuch caſe be as well referred to the diſcontinuance of thoſe very active remedies? We are much inclined to ſuſpect, that often as much harm as good is done by the interference of art in caſes of this ſort.

Mr. *Wadd*, ſurgeon, of London, obſerves, that he has been in the habit of uſing cold water, both internally and externally, in the gout, for nearly twenty years. 'I am now creeping,' he ſays, 'out of the ſevereſt fit I ever had: I plunged the limb into cold water at the height of the inflammation, when pain was exceſſive, and not to be ſubdued by opium. I obtained temporary eaſe.'

Caſes of Typhus Fever, in which the affuſion of cold water has been applied in the London Houſe of Recovery: by W. P. Dimſdale, M.D.—Twelve caſes are here deſcribed in which this remedy was employed, and apparently with the beſt effects. Others have been treated in the ſame way, and in all, the author obſerves, the advantages of it have been ſtrikingly manifeſt, whilſt in no inſtance has the diſeaſe terminated fatally after the uſe of this remedy. The experience of Dr. *Currie* on this ſubject appears to be ſtrongly confirmed, viz. that in the early ſtages of typhus the affuſion ſeems to cut ſhort the diſeaſe; and in the more advanced periods, when the ſtrength of the patient is ſufficient to admit the application of this remedy, it moderates the violence of the ſymptoms, and contributes materially towards a favourable termination.

The digitalis is ſtrongly recommended by Mr. *Gilbert*, of Derby, as a remedy in ſcarlatina, for which he eſteems it almoſt a ſpecific: but further evidence is required to eſtabliſh a point of this importance.

A very

A very good account is given of the Pennſylvania Hoſpital, which appears to be eſtabliſhed on an excellent plan, both in regard to the patients and to the intereſts of medical ſcience.

Mr. *Allen*, a medical practitioner, relates his own caſe of phthiſis, cured, as he ſuppoſes, by the daily uſe of a grain and half, or two grains, of calomel, in combination with digitalis, and a cauſtic applied to the ſternum. In ten days after the application of the cauſtic, and uſe of the calomel, the fever was entirely gone, and ſcarce any cough remained. The amendment henceforward was rapid. The author appears to attribute the principal relief he experienced to the mercury; but if ſo, there was probably ſome peculiarity in the nature of the diſorder, diſtinguiſhing it from ordinary caſes of phthiſis, which it is ſufficiently known are rendered worſe by a mercurial treatment. And that ſuch a peculiarity really did exiſt in the preſent caſe is probable from hence,---that great difference of opinion took place amongſt the practitioners conſulted by the patient as to the real nature of his diſeaſe: one thinking the cough nervous; another, that the lungs were in no wiſe implicated, but that the whole train of ſymptoms aroſe from dyſpepſia. At all events, the caſe affords nothing like a general rule.

Some intereſting remarks on the vaccine diſeaſe, as it appeared in the iſland of Madeira, are given by Dr. *Adams*, reſident in that place. Several portions of matter, received at different periods from England, had failed to produce the diſeaſe; having probably ſuffered decompoſition on the voyage. At length ſome matter preſerved on glaſs was left at the iſland by Dr. *Gill*, in his way to the Weſt Indies, and employed with ſucceſs. It was thus applied: four young ſubjects were ſelected, on each of whom two punctures were made. After this, the tip of a ſmall camel's hair pencil was dipped in water, and the vaccine matter worked with it in the ſame manner as painters work their water colours. By the time a

complete ſolution was effected, the little punctures ceaſed to bleed, and what blood was collected was carefully wiped off: the orifices were then *painted* over, and the uſual caution obſerved to leave them to dry. No appearances on the arm taking place at the uſual period, the operation was ſuppoſed, as in former attempts, to have failed. 'In this ſtate,' Dr. Adams obſerves, 'things remained till Sept. 17, an exact lunar month from the day of inoculation, when I received a letter fom Mr. Carvalhal, to inform me that we had at laſt ſucceeded. At the ſame time Mr. Eeles, an Engliſh gentleman on a viſit at the houſe, wrote me word that the ſubjects inoculated might furniſh matter for the whole iſland. You will eaſily conceive I loſt no time in going, fearful leſt the puſtule ſhould be broken or become dry. On my arrival, the patient was ſent for, and I leave you to gueſs my aſtoniſhment at the ſight of a boy completely covered with ſmall-pox puſtules. Such were my firſt impreſſions, and ſuch my amazement, that I remained for ſome time motionleſs, till rouſed from my reverie by a general burſt of laughter from my ſurrounding friends. Though awakened from my firſt ſurprize, I could not heartily join in the laugh. After ſatisfactory aſſurances that this was among the ſubjects inoculated, I examined the arm, but could find nothing to diſtinguiſh the inoculated part. I next proceeded to diſſect the puſtules, as I have called them, but found them mere veſicles filled with tranſparent lymph. On ſearching for the ſlough which ſhould have lined the *foveolus*, I found the bottom red, and on a level with the *rete mucoſum*, the cavity being entirely made up by the elevation of the cuticle. On inquiry, it appeared that the preſent was the ſeventh day from the commencement of the fever, and the fourth of the eruption. I ought to have obſerved, that the pale veſicular appearance was ſufficiently diſtinguiſhable on the firſt view from the uſual appearance of ſo large a crop of ſmall-pox; but it was not at all unlike that ſpecies

which

which Mead calls the cryſtalline. Whenever you meet with theſe again, I wiſh you would ſearch for the ſlough.

'All that remained to ſatisfy every remaining doubt, was, to inquire whether there was a chance of any previous expoſure to variolous infection; to try the effects of inoculation from this ſubject; and, laſtly, to allow an uninterrupted intercourſe with the neighbouring cottagers at home, and in the field. Two ſubjects were brought for inoculation, in one of which I diſcovered a cicatrix, which led me to ſuſpect he had been inoculated at the ſame time as my eruptive patient. Such I was informed was actually the caſe, which was confirmed by the event of two ſubſequent inoculations with recent matter; ſo that he muſt have gone through the proceſs with ſo little inconvenience, that the whole was entirely overlooked.

'From this time my *eruptive* patient, having no fever, and finding leſs inconvenience from the eruption than might be expected, continued with his family and the neighbouring cottagers, without either reſtriction or medicine. In about a fortnight's time a child at the breaſt appeared ſtill fuller of a ſimilar eruption; the face was completely covered, but without any confluence. Satisfied that the former caſe muſt be vaccine, I conceived I had now made a diſcovery that the diſeaſe, under a full eruption, might be infectious. I was, however, informed that this was among my firſt inoculated ſubjects; and on examining the arm, there appeared a veſicle ſomewhat larger than the reſt, though without the indentation that uſually marks the inoculated ſpot: it was in a ſimilar ſtage with the others,---towards maturation. The veſicles, in whatever part of the body they were examined, appeared, as in the former caſe, red at the bottom, without ſlough, and the fluid limpid. In both ſubjects, as the veſicles dried, they rarely left ſcabs, the new cuticle being formed under the old one, as in a common bliſter, where the dead ſkin, as it is called, is preſerved.

'I was now in daily expectation of ſeeing other children caſually infected; but as both theſe had been inoculated, the event was ſtill doubtful. Several ſubjects were inoculated from the laſt, in ſucceſſion, in order to preſerve the recent matter; but only one had a few veſicles, which appeared after the exſiccation of the inſertion. The ſecond eruptive caſe went through the diſeaſe without a ſingle untoward ſymptom, without medicines, and without caution. Being, as before remarked, at the breaſt, ſhe was conſtantly in arms; and when abroad, under the woman's woollen cloak: when at home, confined to a ſmall cabin, intended in this mild climate only as a ſhelter from rain, or retirement for ſleep. Under all theſe diſadvantages, I watched eagerly for the eleventh day, which paſſed off without any ſecondary fever.'

That the diſeaſe in thoſe caſes was not received by infection from one to the other, is probable, the author thinks, from hence,---that there was leſs intercourſe between them than moſt of the other cottagers and their children, none of whom were caſually affected. The cauſe of this ſingular anomaly Dr. Adams attributes to the influence of the hot ſouth-eaſt winds, which at that period prevailed in an unuſual degree, and probably, he imagines, ſuperſeded the local infection. The influence of this wind, which in Madeira is called *Leſte*, on both inanimate and animated bodies, appears to be very great. Its heat and dryneſs are extreme, and it excites troubleſome inflammation of the eyes. Pulmonary complaints, however, appear to be much benefited by it. The *Leſte* ſeems to be a continuation of the hot winds which prevail at times in Africa and the Mediterranean, and known by the names of the *Harmattan*, *Sirocco*, and *Levanter*. The influence of theſe on the human body, and eſpecially their power of ſtopping epidemical and infectious diſeaſes, have been noticed by different authors.*

* Norris's Memoirs of the Reign of Boſſa Ahadee, King of Dahomey. —Literary Mag. vol. 3, p. 254.—Lynd—Brydone, &c.

Several

Several children were afterwards inoculated with the matter of thoſe veſicles; two of them only had ſecondary veſicles produced: in one of them the ſymptoms did not appear till twenty days after inoculation. Although the ſmall-pox prevailed juſt before in the iſland with great ſeverity and fatality, there was no reaſon to ſuppoſe that it had any ſhare in producing the eruptions in the caſes here mentioned, as it had not ſpread into the quarter where the inoculations were performed. A curious inſtance is mentioned of a child whoſe ſkin was covered with a profuſion of veſicles, broader and flatter than in the other caſes, owing, it would ſeem, to the child being waſhed every day with the ſame water and hand that had been juſt before employed to waſh one of the inoculated children, and on whom ſecondary veſicles exiſted.

How far the patients thus anomalouſly affected are ſecure from variolous infection, there does not appear to have yet been an opportunity of aſcertaining. Some late writers on the ſubject would have called them *ſpurious* caſes of the diſeaſe, and not to be relied on as preventive of ſmall-pox.

Further inſtances of the irregularity of the cow-pock are furniſhed by Mr. *Wagſtaffe*, of Southwark, as follow.

'Caſe 1. I inoculated a child about three months old with genuine vaccine fluid, which excited inflammation, and proceeded regularly till the eighth day, when the child was attacked with vomiting and diarrhœa, ſucceeded by convulſions, which terminated the next day in death.

'Caſe 2. Another child, inoculated at the ſame time, proceeded regularly until the ninth day, when ſhe was attacked with vomiting and diarrhœa, ſucceeded by convulſions, which continued ſix weeks, and then terminated fatally.

'I ſhall make no comments on theſe caſes, as I could much wiſh for the ſentiments of ſome of your

correſpondents who have ſeen more of the diſeaſe than myſelf.

'The firſt child was in perfect health when inoculated; the ſecond had a troubleſome cough.

'Caſe 3. A few weeks ago I inoculated a child with vaccine fluid in both arms, one of which inflamed, and went through the uſual proceſs; the other, as I ſuppoſed, had failed. On the thirteenth day after inoculation the child was taken into the country, and in the courſe of two or three days the nurſe obſerved the other arm inflamed: the inflammation continued to ſpread, and maturated at the uſual time; the only difference between the two was, that the latter puſtule was not ſo large as the former.

'*Southwark, Feb.* 18, 1803.'

Mr. Waſhbourn, ſurgeon, of Marlborough, mentions a caſe where the vaccine puſtule was ſuſpended for ſeveral days by the action of the virus of chicken-pox in the ſyſtem.

ART. LXXXVIII. *Some Obſervations on the preſent Epidemic Catarrhal Fever, or Influenza, chiefly in Relation to the Mode of Treatment. To which are ſubjoined, Hiſtorical Abſtracts concerning the Catarrhal Fevers of* 1762, 1775, *and* 1782. *By* RICHARD PEARSON, *M.D.* 8vo, 26 pages. Price 1s 6d. London, 1803. BALDWIN.

EPIDEMICS of the ſort here deſcribed, and which, after ſhort but uncertain intervals, appear to pervade a great part of the world, are ſo rapid in their progreſs, and of ſuch ſhort duration, that every thing intended in the way of inſtruction in regard to the treatment almoſt always comes too late to be uſeful. It is chiefly in a hiſtorical point of view, and in regard to the future occurrence of ſuch events, that the account of them becomes intereſting to

to practitioners. The preſent epidemic reſembles very ſtrongly, in its leading and characteriſtic ſymptoms, thoſe which have been recorded of former periods. The catarrhal affection has always conſtituted the moſt important part of the diſeaſe; and where it has been neglected, and when it has occurred in perſons labouring under, or prediſpoſed to, pulmonary affections, has too frequently led to a fatal termination. The nature of the exciting cauſe is wholly unknown: whilſt to ſome the diſeaſe has appeared contagious, its rapid and wide ſpread leads us to ſuſpect ſome more generally prevailing cauſe in the atmoſphere as alone capable of accounting for its extenſive and ſpeedy diffuſion.

The diſeaſe, as it has appeared of late in the metropolis, is thus well depicted by Dr. *Pearſon.*

'The following is its moſt frequent mode of attack. After ſome alternations of chilline's and heat, the patient is ſeized with a heavineſs or pain of the head, with ſneezing, waterineſs of the eyes, hoarſeneſs, and cough. Theſe ſymptoms come on in the order here ſtated. In the courſe of a few hours the head-ach increaſes, the ſkin becomes hot, with a pain in the back and limbs, or tranſitory ſtitches acroſs the cheſt. The tongue is white; the pulſe quick or frequent, and for the moſt part ſoft. There is more or leſs of ſickneſs at the ſtomach, and ſometimes vomiting. The bowels are generally coſtive, and conſiderable uneaſineſs, often amounting to great pain, is felt in ſome part of the abdomen. By the ſecond or third night, the cough and fever become greatly aggravated. The former, viz. the cough, is ſtrong, inceſſant, ſometimes dry, but generally accompanied, even at its firſt coming on, with an expectoration of thin, ſharp mucus; the latter, viz. the fever, is attended with increaſed heat, and with extreme reſtleſſneſs and anxiety. There is alſo ſome confuſion of the head. At this time the pulſe is often from 100 to 120. In the morning there is a conſiderable remiſſion of the febrile ſymptoms; but

but the cough ſtill continues urgent, and the patient complains of exceſſive languor and dejection of ſpirits.

'After the fourth or fifth day, where early perſpirations have come on, or ſufficient evacuations have been procured by the bowels, the fever declines; and although the cough continues, the expectoration is more free, the ſputum being of a thicker conſiſtence and milder quality. The urine, which before was high coloured and clear, now becomes turbid, or throws down a ſediment. In other inſtances, the cough goes off without any remarkable degree of expectoration. The laſſitude and depreſſion of ſpirits, with reſtleſs nights, haraſs the patient for many days after the decline of fever; which, indeed, in ſeveral inſtances, does not entirely go off after the fifth day, but becomes intermittent, the patient feeling himſelf worſe every other day.

'Such is the moſt common form of this epidemic. Its modifications, however, as we have before obſerved, are extremely numerous, ſo that in ſome there is a violent head-ach with little catarrhal affection; in others, a ſore throat; in others, a peripneumonic condition; and in others, a diſordered ſtate of the ſtomach and bowels.'

In the treatment, the author obſerves that our chief attention ſhould be paid to the fever; and for this purpoſe, emetics, with mercurial and antimonial cathartics, are adviſed, together with the employment of the general antiphlogiſtic regimen: ſweating, however, ſhould not be encouraged after the firſt or ſecond day, on account of the great languor and depreſſion which commonly take place. The patient, therefore, ſhould ſit out of bed, and the air of the room be kept cool and well ventilated. The local affection of the breaſt may be relieved by bliſtering and opiates; the latter ſparingly employed, and only after the bowels have been evacuated.

Art.

ART. LXXXIX. *Obſervations on the Epidemical Diſeaſes now prevailing in London, with their Diviſions, Method of Treatment, Prevention, &c. By* ROBERT HOOPER, *M.D. Reſident Phyſician to the St. Mary le Bone Infirmary.* 8vo, 43 pages. Price 2s. London, 1803. MURRAY and HIGHLEY.

THE author of the pamphlet before us takes a ſomewhat wider range than the preceding, and treats ſyſtematically of moſt of the diſeaſes which are prevalent at the preſent period, and which he ſuppoſes to be all, more or leſs, influenced by the epidemic ſtate of the air. It is not here allowed to be in any degree contagious.

The ſymptoms are minutely and accurately deſcribed, and the mode of cure recommended appears to be judicious: but they coincide ſo nearly with what has been mentioned above, that we need not go into particulars. The diſeaſe differs, indeed, ſo widely in different individuals, that no general plan of treatment can be laid down which ſhall be applicable to all. The judgment of the practitioner muſt in all caſes determine his conduct.

ART. XC. *An Account of the Experiments performed by* JOHN ALDINI, *Profeſſor of Experimental Philoſophy in the Univerſity of Bologna, &c. on the Body of a Malefactor executed at Newgate, Jan.* 17, 1803; *with a ſhort View of ſome Experiments which will be deſcribed in the Author's new Work now in the Preſs.* 8vo, 36 pages. Price 2s. London, 1803. CUTHELL.

THE moſt material points in theſe experiments will be found noticed in the *Miſcellaneous* part of the preſent and former numbers of our journal, to which, therefore, we refer. M. *Aldini* is about to publiſh a more extenſive work on the ſubject of Galvaniſm, and its application to medicine.

MISCEL-

MISCELLANEOUS.

§ 57. *On Galvaniſm, and Animal Electricity.*

IN our laſt (p. 499) we mentioned the experiments of M. *Aldini*, which prove, that, in order to excite muſcular contractions, it is ſufficient to apply the nerves of a living animal, or of one recently killed, to the muſcular fibres. An evident attraction was obſerved in this caſe between the nerve and muſcle, on being made to approach each other.

The Italian philoſophers, *Vaſſali, Giulo*, and *Roſſi*, have proſecuted this intereſting ſubject ſtill farther. They found that the heart of animals contracts, like all other muſcular parts, when ſubjected to the Galvanic action; but they conſtantly obſerved the contractility of this organ to ceaſe in about forty minutes after death. Their experiments, however, in this reſpect, are oppoſed by thoſe of M. *Nyſten*, who remarked, in a great number of trials, that, of all the organs, the heart was the longeſt ſenſible to the Galvanic ſtimulus. The heart of a man who had been decapitated continued excitable four hours and a half after death; and that of a frog had not loſt its excitability at the end of fifteen hours: whence he concludes, that the firſt organ which gives ſigns of life in the *punctum ſaliens* of the embryo is alſo that which retains it the longeſt, and may be conſidered as the *ultimum moriens* in the ſyſtem.

The contractility of the fibrine of the blood (the coagulum which we obtain from blood by agitation) was firſt diſcovered by M. *Circaud*, of Paris. On ſubmitting this to the action of the pile of *Volta*, he obſerved it to contract exactly like muſcular fibre. This experiment was repeated by M. *Delametherie*, who took, for this purpoſe, the fibrine extracted from the blood of an ox, the heat of which was 32° of Reaumur's ſcale: it was placed on a piece of wood; and a copper wire, which communicated with the bottom of the pile, was thruſt into the middle of the fibrine, whilſt the external part was touched with another copper wire derived from

from the ſuperior extremity of the pile, and which terminated in a ring: the fibrine contracted itſelf gently, like the heart of a frog when irritated; and this contraction was ſucceeded by relaxation. On again completing the circle, the contraction was renewed as before.

But theſe were not the only effects obſerved from the action of Galvaniſm on the blood. M. *Delametherie* found, that when any portion of clotted blood adhered to the fibrine, and was touched by the conductor from the top of the pile, its colour, which before was of a dark hue, changed inſtantly to a pale-red colour.

It was obſerved, likewiſe, that this change of colour in the blood only took place from the application of the metallic wire communicating with the *poſitive* ſide of the pile. When the poſitive wire was plunged into the lower part of the fibrine, whilſt at the ſame time the negative was applied to the ſuperior part covered with blood, no change of colour took place. Now we know, that, when the wires communicating with the two extremities of the pile are plunged into water, the one from the *negative* ſide diſengages hydrogen, whilſt the *poſitive* affords oxygen. But it is hydrogen which renders the blood black; in the latter caſe, therefore, no change of colour could be expected.

On the other hand, oxygen gives the blood a florid colour; and in the firſt-mentioned experiment the blood is not merely reddened, but rendered almoſt white; owing, no doubt, to the oxygenation being more conſiderable, and thus deſtroying the colour, as in the bleaching proceſs.

When the fibrine, by being cooled down nearly to the temperature of the atmoſphere, had loſt moſt of its contractility, it again recovered its irritability, merely by being ſprinkled with freſh warm blood, or by the clot being immerſed in this. The warm blood in this caſe ſeems to act in two ways: firſt, by communicating heat to the fibrine; and, ſecondly, perhaps, by contributing to augment its irritability; for if the fibrine be well waſhed with water of the ſame temperature with the blood, it loſes its irritability, and cannot be again made to contract by any means.

Journ. de Phyſ., t. 56---161.

§ 58.

§ 58. *Caſe of Diſeaſe of the Heart, with the Diſſection. By* Dr. Wallich, *of Coblentz.* (From Tode's Journal, vol. 3.)

A man, thirty-two years of age, after long previous illneſs, fell ſuddenly out of his bed at a time when he was in a profuſe perſpiration, in conſequence of an alarm excited by the cannonade of the fortreſs of Ehrenbritſtein. He felt at the inſtant an acute pain of the left ſide, below the falſe ribs, and for which various remedies were ineffectually employed.

The principal ſymptoms that followed, were ſhort and accelerated reſpiration; ſtrong and conſtant beating of the heart, perceptible at a diſtance by the elevation of the clothes; an obſtinate and ſpaſmodic cough, accompanied at times with vomiting. The patient felt at intervals violent attacks of pain towards the falſe ribs on the left ſide, and the reſpiration was frequently ſuſpended for ſome ſeconds: the pulſe was conſtantly accelerated, rapid, and full. He could not lie on his back. For two years he could only ſleep ſitting up and leaning forwards over a table: digeſtion was ill performed, and at length cachectic ſymptoms came on, terminating in general dropſy and death.

On inſpecting the body, there was found a conſiderable ſerous accumulation in the cavities of the cheſt and abdomen. But the moſt remarkable circumſtance that occurred, was the extraordinary bulk of the heart, which was four times larger and heavier than natural: it had puſhed the left lung upwards, which was much diminiſhed in ſize. The heart was eight inches in length, and five broad at its baſis: it contained much water in its ventricles. Coagulated blood was found in the right auricle and ventricle; and at the origin of the pulmonary artery a polypous concretion extended ſome way into its cavity. Nearly the ſame appearances took place on the left ſide of the heart, and the internal ſurface of the aorta was oſſified in ſeveral places. The ſides of the heart were ſtronger and more fleſhy than common.

The liver was enlarged and indurated; the gall bladder thickened; as were likewiſe the ſpleen and left kidney. The other viſcera were ſound.

§ 59.

§ 59. *Effects of Sulphurated Hydrogen Gas on Animals.*

Cit. *Chauſſier*, of Paris, has made ſome intereſting experiments on the effects of the ſulphurated hydrogen gas, when applied to the bodies of animals in different ways. Different animals, he obſerves, were ſubmitted to the action of this gas, every one of whom expired after ſome ſeconds, and every means of reſuſcitation proved ineffectual. On examining animals killed by this gas, it was obſerved, Firſt, That the cavities of the noſe and bronchiæ were covered by a browniſh mucus. Secondly, That the blood had undergone a remarkable change, being black and thick; an effect extending to every part which received many blood veſſels: thus the lungs, liver, ſpleen, and even the encephalon, were found changed. Thirdly, The muſcles were not only changed in colour, but their contractile power was always diminiſhed, and in ſome caſes totally loſt. Fourthly, All the ſoft parts had loſt their conſiſtence, quickly putrified, and emitted an uncommonly bad ſmell; and as a proof of the extenſive influence of this gas when taken into the lungs by reſpiration, a plate of ſilver, or a piece of white oxyd of lead, which had been introduced under the ſkin, became black when the animal had inſpired. The baneful effects of the hydrog. ſulph. gas taken into the lungs being proved, Cit. Chauſſier thought it neceſſary to aſcertain its effects on other organs of the body, and even when applied to different ſurfaces. Among a number of experiments made with this view, the following are the moſt remarkable.

Exp. I. A bladder filled with hydrog. ſulph. gas was attached to a ſmall tube with a valve; the extremity of the tube was inſinuated through a ſmall opening under the ſkin in the thigh of a rabbit; a portion of the gas was preſſed into the ſubcutaneous cellular ſubſtance, ſo as to form an artificial emphyſema: as ſoon as the gas had aſcended as high as the thorax (i. e. in about 30 ſeconds), the animal gave a ſhriek, and dropped dead. A variety of ſtimuli were immediately applied, but the animal ſhewed no ſigns of remaining life.

life. The ſame experiment on frogs was followed by the ſame reſults. All the ſuperficial cellular ſubſtance, and even the ſuperficial muſcles, were changed to a dark-brown colour.

In a ſecond experiment it was found that water ſaturated with this gas produced the ſame violent effects; and to prove that theſe conſequences were peculiar to the hydrog. ſulph. gas, different other fluids, ſuch as atmoſpheric air, water, hydrogen gas, oxygen, carbonic acid gas, &c. were introduced with the ſame apparatus, and, except ſome trifling mechanical inconvenience from the operation, the fluid was abſorbed, and no remarkable conſequence enſued. The hydrog. ſulph. gas thrown into the rectum of a rabbit, killed it in a few ſeconds: the inteſtines, liver, and adjoining viſcera, were changed in colour, but the contents of the thorax and head were not altered. This experiment was repeated on a horſe, in the preſence of a number of perſons. The animal firſt endeavoured to expel the gas, to prevent which care was taken: he was ſeized with convulſion, and died in the ſpace of a minute. The immediate opening of the animal ſhewed the ſame changes of colour as in the preceding experiments. Water impregnated with this air was injected into the anus of different animals, and with different doſes of the gas; all of them died within the ſpace of two minutes. Cit. Chauſſier determined to aſcertain the effects of this gas on the ſtomach, which he did by laying bare the œſophagus on the ſide of the neck, and introducing, with the apparatus already deſcribed, the gas pure, and water impregnated with it: the operation was almoſt inſtantaneouſly followed by death. The colour of the inner membrane of the ſtomach was much changed; the other viſcera were not affected.

(Med. and Phyſ. Jo., No. 46.)

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§ 60. *Experiments and Obſervations to determine the Influence of Oxygene on Germination. By* J. Carradori, *M. D.* (Journal de Phyſique, An. x.)

It was long ago eſtabliſhed, by the obſervations of *Boyle* and *Homberg*, that atmoſpheric air is neceſſary to the germination

nation of plants; for this proceſs does not take place *in vacuo*; nor do ſeeds germinate at conſiderable depths beneath the ſurface of the earth: few ſeeds ſhoot even when immerſed in water. Later obſervation has diſcovered, that it is the oxygenous portion of the atmoſphere alone that contributes to this proceſs; for M. *Achard*, and after him other philoſophers, have obſerved, that germination does not take place in mephitic air; for example, in inflammable or hydrogene air, nor in phlogiſticated or azotic air; and this has been farther confirmed by the experiments of *Ingenhouz*, who found that the more the oxygene abounded, the more rapidly did the ſeeds germinate. This it was, probably, which led M. *Humboldt* to propoſe, as a means of accelerating the proceſs of germination, the uſe of the oxy-muriatic acid, and even the diluted nitric acid, as *Decandolle* pretends, both which are ſuppoſed to be charged with oxygene.

M. *Carradori*, in the paper before us, endeavours to determine preciſely the effects of oxygene, or in what manner it acts in the germinating proceſs. In order to germination, it is neceſſary that there be a principle of fermentation in the farinaceous ſubſtance lodged in the cotyledons or placentæ of ſeeds, and which ſubſtance, as every one knows, envelopes and ſurrounds the germ or embryo: thus it may be ſuppoſed, that, by means of fermentation, this ſubſtance, combining itſelf with oxygene, acquires a certain degree of acidity, and which renders it in conſequence a ſtimulus proper to excite the vitality of the germ, and thus give the firſt movement to the circulation of the fluids in the embryo; or, 2dly, that, by means of the oxygene, the farinaceous ſubſtance becomes ſo modified, as to be capable of furniſhing the firſt nutriment to the tender fœtus or embryo of the plant; for the late experiments of Mr. *Cruickſhanks* have demonſtrated, that, in the germination of the cereal ſeeds, the amylaceous, in conſequence of its combination with oxygene, is changed into ſaccharine matter.

It is not, however, certain that theſe are the only effects of oxygene in germination; and, in order farther to illuſ-

trate the ſubject, M. *Carradori* inſtituted the following experiments.

He placed a number of grains of wheat on a plate, attaching them to the bottom of the veſſel by means of ſoft wax, ſo that they ſtood perpendicularly; ſome with the germinating extremity upwards, and others with the ſame part downwards: he then poured water on them, of a ſufficient depth juſt to reach the ſuperior extremity, but not quite to cover it, ſo that the air might come in contact with one or other of the extremities. After twenty-four hours, he obſerved that thoſe which were placed with the germs uppermoſt had ſhot out ſurpriſingly, whilſt the others gave only the ſlighteſt marks of beginning germination, and not at all ſuperior to other grains which had been kept totally immerſed under the water. The effect was the ſame when the young ſtalks and roots were expoſed in ſimilar circumſtances.

Thus it appears that oxygene, or vital air, is neceſſary to germination, ſince the tender plant cannot proſper and grow without its immediate contact. Thus alſo we ſee, that, although it has received life, it is not capable of continuing it, unleſs the ſhoot or ſtem be in contact with the air. The firſt ſtage of germination may take place by the preſence of oxygene in a combined ſtate, as in water; but the farther growth and developement depend on the immediate preſence of atmoſpheric air.

Germination, however, does not take place under water in all caſes, but in peculiar circumſtances only. M. *Carradori* took ſome grains of wheat, and, laying them on a plate, poured on water juſt ſufficient to cover them; others were placed at the bottom of veſſels, at different diſtances beneath the ſurface of the water. After twenty-four hours, it was found that the firſt and ſecond of theſe only ſhewed ſigns of germination. It appears neceſſary, therefore, that the water immediately adjoining the ſeeds ſhould be in a ſituation to imbibe oxygene from the air, in order to the proceſs of germination going on.

The ſame experiments were repeated with a ſimilar reſult, with the ſeeds of barley, beans, and lupins; whence the author

thor concludes, that the ſame doctrine is applicable to terreſtrial plants in general, that is, to all ſuch as grow on the dry ſurface of the earth. With reſpect to aquatic plants, it is ſufficient, as well for the commencement as the continuation of the germinating proceſs, that oxygene be combined with the water in which they grow; for we ſee that they germinate and grow very well under water: their peculiar organization, different from that of terreſtrial plants, enabling them to profit by the oxygen already diſſolved in the water that ſurrounds them.

Notwithſtanding ſeeds are capable of undergoing the firſt proceſs of germination under water, yet a long previous immerſion is exceedingly detrimental to them. Wheat, after ſoaking in water for the ſpace of three days, germinated readily when tranſported to a proper ſoil; but after five days immerſion, few of the grains ſhewed any ſigns of vitality; whilſt thoſe which did germinate manifeſted appearances of languor and debility. The ſame thing happens with regard to young plants which have firſt germinated under water; their future growth is impeded by too long immerſion. Hence the ill effects of exceſſive rains after ſeed-time in agriculture, and hence the unfavourable operation of a wet winter with regard to the ſucceeding harveſt.

The uſe of oxygene, therefore, is indiſpenſible during the germination and early growth of plants. After this period, however, M. *Carradori* obſerves, that is, after the ſtage of infancy is paſſed, oxygene is no longer neceſſary to their proſperity; on the contrary, mephitic air at this time furniſhes them with their principal aliment.

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§ 61. *On the Impurity of Diſtilled Water.*

Water is ſuppoſed to be ſo effectually purified, and fitted for the purpoſes of a menſtruum, by the proceſs of diſtillation, that very little precaution has been thought neceſſary in the manipulation. The *Paris* pharmacopœia recommends *rain* water to be uſed, and two thirds of it only to be drawn over. Thoſe of *London* and *Wirtemburg* preſcribe *ſpring*

water to be diſtilled over a naked fire, and the firſt portion that comes over to be rejected. And *Fourcroy*, in his *Elements of Nat. Hiſt. and Chem.*, propoſes an alembic of copper lined with tin, without any other precautions. This variety of practice ſhews that no methodical attention has been paid to the ſubject.

A French chemiſt, M. *Delunel*, has made ſome obſervations on this point that may be deemed intereſting. Having frequently obſerved that the hyper-oxygenated muriate of mercury (corroſive ſublimate) was not diſſolved in diſtilled water, he was led to examine the cauſe of this inſolubility. He found, after a variety of trials, that if a quantity of well-water was diſtilled, and the product divided into three portions, the laſt portion alone poſſeſſed the property of a perfect ſolvent of the mercurial ſalt. Nor did the former portions perfectly diſſolve ſoap, or the nitrates of ſilver and alumine.

This curious phenomenon M. *Delunel* attributes not to any foreign impregnation, for the uſeleſs portions manifeſted nothing particular, nor afforded any precipitate with carbonate of potaſh, pure potaſh, or ammoniac; but to the greater or ſmaller quantity of caloric, which he ſuppoſes to be diſſolved in the volatilized fluid, and which is according to the degree of heat employed in the proceſs of diſtillation. The water begins to diſtil when it acquires a heat of 20 degrees (of *Reaumur*), but it does not become a ſolvent of the mercurial ſalt till the heat riſes to 75 degrees. When well-water was diſtilled *in balneo mariæ*, no part of the product was found to diſſolve the mercurial ſalt. It appears, therefore, that well-water will not diſſolve muriate of mercury till it has been diſtilled at a very elevated temperature; whereas river-water requires a very inferior degree of heat for the ſame purpoſe.

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§ 62. *On the Part which the Imagination acted in the Experiments with Nitrous Oxide.*

The following recital is intended by the writer to ſhew, that, if the imagination be duly prepared, common air will perform as great wonders as nitrous oxide. "Profeſſor Woodhouſe

Woodhouſe adminiſtered (as he writes in a letter to Dr. Mitchill, of New York, editor of the Medical Repoſitory, dated March 5, 1802) ten gallons of atmoſpherical air, in doſes of from four to ſix quarts, to ſeveral gentlemen who were previouſly impreſſed with the idea that they were going to breathe the nitrous oxide. Quickneſs of the pulſe, dizzineſs, vertigo, tinnitus aurium, difficulty of breathing, anxiety about the breaſt, a ſenſation ſimilar to that of ſwinging, faintneſs, weakneſs of the knees, and naufea, which laſted from ſix to eight hours, were the ſymptoms produced by the common air we breathe, when acting under the influence of the imagination!" The editor adds—"But we believe theſe deceptions impoſed upon the world about nitrous oxide are now pretty well underſtood;"—and *we* would add—"we believe not in America."

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§ 63. *Analyſis of a Pulmonary Calculus.*

Mr. Crampton has lately communicated to the Royal Society the analyſis of a pulmonary calculus which he examined. He found it to contain in 100 parts, 45 of lime, 37 of carbonic acid, and 18 of animal matter and water: the animal matter was probably albumen, being coagulable in acids. He thinks it probable that this ſpecimen may have been of a different nature from thoſe which are deſcribed by Fourcroy, and which have been ſuppoſed to contain phoſphate of lime. Mr. Crampton thinks it eaſier to underſtand how phoſphate of lime might have been ſeparated from the blood than carbonate; but he conceives that even this may be depoſited in the lungs by a morbid proceſs, ſimilar to the healthy one by which it is ſecreted to form a conſiderable part of the bones.

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§ 64. *New Medical Syſtem.*

A very comprehenſive and intereſting work has been lately publiſhed at Paris by Dr. *Burdin*, phyſician in that city. It is compriſed in five vols. 8vo, and contains the new anatomical nomenclature. The title of it is,—"Cours d'Etudes Medicales, ou Expoſition de la Structure de l'Homme com-

parée à celle des Animaux; de l'Hiſtoire de ſes Maladies; des Connoiſſances acquiſes ſur l'Action reguliere de ſes Organs," &c. &c. 1803.

We are informed, that a tranſlation into Engliſh of the above valuable publication may ſhortly be expected.

CORRESPONDENCE.

To the Editors of the *Med. and Chir. Review.*

—— " IT is not in my power to anſwer the queſtion of your correſpondent Ἰατὴρ (p. 400) as to the event of the operations lately performed on the *membrana tympani*; but it may be ſome ſatisfaction to him to learn the ſentiments of ſeveral diſtinguiſhed anatomiſts on the ſubject.

" *Valſalva* ſays (*Tract. de Aur. Hum.*, c. 5, ſect. 5), ſpeaking of the experiment deſcribed by *Willis*, to which Ἰατὴρ alludes, that the relation is by no means ſufficiently full and exact; nor is the ſtate of the membrana tympani, as it appeared on diſſection, mentioned. It would ſeem, from the account, that the dog was capable of hearing immediately after the operation, though indiſtinctly and imperfectly. *Valſalva* ſuppoſes, that, in this operation of *Willis*, the perforation or rupture in the membrane might have healed ſhortly after the operation, and the integrity of the membrane been reſtored; for he himſelf ruptured it in two dogs in each ear with a blunt probe, taking care, at the ſame time, to lacerate the openings. On killing the animals afterwards, and examining the parts, he found the ruptures had perfectly healed, no trace of the injury remaining. In *Willis*'s experiment, not the membrane alone, but the ſmall bones themſelves, may have been injured, or the other important parts of the organ may have ſuffered by the inflammation excited by the operation.

" *Morgagni*, in his comment on this ſubject (*Epiſt. Anat.*, 13, ſect. 11), quotes the opinions and obſervations of a variety of authors, both prior and ſubſequent to the time of *Valſalva*; ſome of whom coincided in opinion with him, whilſt others held a contrary one. *Sylvius, Sennertus, Riverius*, and others,

others, who adopted the opinion of the antients, imagined that incurable deafneſs muſt be the neceſſary and immediate conſequence of a rupture of the membrana tympani: whilſt *Willis* ſuppoſed that the deafneſs only came on ſome time after the injury; and there are not wanting others who adopted a ſimilar notion. On the other hand, *Schelhammerus* (*De Auditu.*, p. 3, c. 4) aſſerts, that this by no means neceſſarily happens, but that the membrane is often injured and ruptured without any detriment to the hearing; and he quotes *Horſtius* and *Kyper* in proof of this opinion. *Schneider*, *Plempius*, and *Riolan*, were of the ſame ſentiment; and the latter propoſes the operation of perforating the membrana tympani in caſes of deafneſs ariſing from a thickened ſtate of that membrane. Theſe writers preceded *Valſalva*. Of thoſe who wrote ſubſequently, *J. G. Pauli* aſſerts (*Annot. in Horn. Microcoſm.*, No. 47), that he and others had repeatedly obſerved, that when the membrana tympani of both ears was ruptured, and when, at the ſame time, the *malleus* and *incus* were diſplaced, ſudden loſs of hearing was the conſequence. From three other experiments, however, of a ſimilar kind, made afterwards by *Valſalva*, and for the accuracy of which *Morgagni* vouches, it is certain that the membrana tympani may be wounded without any very perceptible preſent or future injury. In one inſtance, the animal appeared to ſuffer extreme pain from the operation; but this was not at all the caſe in the others (*Epiſt.* 13, ſect. 12).

"The fact of the entire reſtitution of the membrane after being punctured, as obſerved by *Valſalva*, merits notice, as it may account for the return of deafneſs after a time, where it had before been relieved by the operation; and points out, at the ſame time, the neceſſity there may be for repeating it.

"Upon the whole I would obſerve, that there are probably few caſes of deafneſs, the cauſes of which are ſo limited, or of ſuch a nature, as to admit of cure by the operation in queſtion. Yet it is of importance to know, that it may be performed with ſafety to the patient, and probably without riſk of aggravating where it cannot relieve. A."

VIEW
of
THE PROGRESS OF MEDICINE.

MEDICINE may be conſidered in two points of view: as a *ſcience*, eſtabliſhing itſelf on fixed and determinate principles; or as an *art*, founded chiefly on obſervation and experiment. In the former reſpect, it is yet in its infancy; nor have the induſtry or ingenuity of modern times contributed, in any material degree, to its advancement. The reaſon undoubtedly is, that phyſiology, on which medicine as a ſcience muſt be built, is ſtill involved in great obſcurity, and known to us only in a few of its groſſer and more ſtriking phenomena. The nature of the living principle, its mode of acting in animated ſyſtems, the ultimate ſtructure of theſe, and the primary changes which they undergo, appear to be all far above the reach of human faculties to detect. So, at leaſt, may we infer, from the fruitleſsneſs of all inquiries hitherto made into this abſtruſe ſubject. The difficulty of the inveſtigation was early felt; phyſicians have called in the aid of all the other ſciences, and have connected them, in turn, with that of medicine: but with what effect, the ever-varying ſcene of medical theory will ſhew. Hypotheſis has followed hypotheſis, whilſt every freſh adventurer has ſucceeded only in demoliſhing the baſeleſs fabric of his predeceſſor, but has left us nothing ſtable or ſatisfactory in its ſtead. Whatever advances have been really made in the knowledge and cure of diſeaſes, have been more the reſult of obſervation and experiment (and not unfrequently indeed of chance itſelf), than of any proceſs of reaſoning on previous or abſtract principles.

To the former we have been of late indebted for the greateſt improvement the art of medicine has probably ever undergone; the introduction of the vaccine inoculation, which has already, in a great meaſure, ſuperſeded, and promiſes ultimately to annihilate, one of the moſt deſtructive ſcourges of human ſociety. The experience of four years has ſerved to eſtabliſh the new practice on a baſis too ſolid, it is hoped, to be ſhaken. The rapidity with which it has diffuſed itſelf into almoſt every corner of the world, is truly aſtoniſhing, and marks, in a very ſtriking manner, the liberality of the age we live in. The ſmall-pox inoculation, with comparatively fewer advantages, and leſs repugnant to the common feelings of mankind, encountered the moſt violent and laſting oppoſition; ſo much ſo, indeed, as to render it very queſtionable, whether ſociety, under its limited adoption, were at all gainers by it; ſince it is well known, that by furniſhing a conſtant ſource of infection, it has added materially to the ravages of the natural diſeaſe. With the vaccine it is far otherwiſe. This being deſtitute of infectious powers, in the ordinary intercourſe of men, enables it to diffuſe its benefits without alloy. To the moſt timid or prejudiced, and who cannot yet embrace it as a friend, it is no object of terror or annoyance.

Whilſt the advantages of the new practice appear thus far to be amply confirmed, the objections at firſt urged againſt it, and which were more rooted in prejudice than obſervation, have of late been very

very little heard of. Inſtances, indeed, and thoſe not a few, have been adduced, where ſmall-pox is ſaid to have taken place after the vaccine inoculation, as well as where the diſeaſe had been caſually received. Many of them, probably, are founded in error and miſapprehenſion; yet we have thought it right to bring them forward, ſince, whether they are really ſo, or are referable to irregularity properly belonging to the diſeaſe, they make an eſſential part of its hiſtory, and ought not to be entirely overlooked. For the chief of them, we refer to our 7th vol., p. 189, and to pages 87 and 383 of the preſent. Admitting that theſe are fair exceptions to the preventive power of the vaccine diſeaſe, they are far too few to influence our general conduct, or to make the propriety of the new practice at all queſtionable. An equal number of caſes might without difficulty be collected, where the variolous inoculation had failed to ſuperſede the natural diſeaſe.

Exceptions, alſo, to the univerſal mildneſs and want of danger of the cow-pock have been brought forward, and, as it appears to us, have been regarded with leſs attention than they merit. There have been indubitable inſtances of the inflammation following the punctures going to an alarming, and, in ſome, to a fatal, length. We point particularly to the caſes mentioned at page 481, where, in two children, ſuch a degree of inflammation aroſe on the arm, ſpreading afterwards over a great part of the body, as to prove fatal to one of them, and nearly ſo to the other. A caſe perfectly ſimilar, and which terminated in death, occurred in an infant inoculated with the vaccine virus, at the Small-pox Hoſpital, as deſcribed in the 6th vol. of the *Med. and Phyſ. Journal*, p. 18. To theſe muſt be added the caſe related at page 389 of the preſent volume, where the inflammation excited by the inoculation apparently deſtroyed the patient. Nor is inflammation the only poſſible ſource of miſchief. Convulſions have in many infants occurred on the acceſſion of the fever; and theſe, we know, are never without a certain degree of danger. Inſtances of convulſion are mentioned by Dr. Woodville, in his treatiſe on the ſubject; and the caſes deſcribed by Mr. Wagſtaffe, at page 571, are ſtill more ſtrongly in point.

It cannot, therefore, with truth be ſtated, that the cow-pock is in all caſes free from inconvenience, or even exempt from danger. But it is ſufficient for our purpoſe to know, that, in this reſpect it has ſtill infinitely the advantage of the ſmall-pox, beſides its many other grounds of preference.

The ſpeedy and almoſt infallible ſuppreſſion of contagion, by means as ſimple as practicable, deſerves to rank with the moſt important improvements of the preſent times. Another formidable foe to the human race, and which, formerly, with the ſmall pox, contributed to thin the ranks of ſociety, has thus been, in a great meaſure, ſubjugated to the power of art; and peſtilence itſelf has been deprived of half its terrors. We have been taught to deſtroy the evil in the bud. The eſtabliſhment of fever wards, which are daily becoming more general, effect the double purpoſe of more effectually relieving the ſick, and of preſerving the healthy from the attack

attack. The advantages reſulting from this preventive plan are not eaſily calculated. Fever is not more to be dreaded by the immediate mortality it occaſions, than from its more remote conſequences. The far greater number of the chronic ailments, which prove deſtructive to the inferior claſſes of ſociety may be traced to this ſource.

Chemiſtry, a ſcience ſo intereſting in itſelf, and applicable to ſo many uſeful purpoſes in life, continues to be cultivated with aſſiduity and ſucceſs. The labours of philoſophers in this field have engaged a proportionate ſhare of our attention; and the diſcoveries which have been made have been carefully noticed. Not that we conſider chemiſtry yet to have thrown much light on the nature of the animal functions; or to have afforded us any ſafe and certain guide to the removal of diſeaſes: but this defect, perhaps, is rather to be attributed to the difficulty attending all reſearches into the elementary parts of matter, and the obſcurity of animated nature, than to any inherent and inſurmountable obſtacles. There is reaſon to hope, that the future inveſtigations of chemical philoſophers will remove much of the veil which at preſent obſcures the ſubject.

The new doctrines of chemiſtry, and, conſequently, the nomenclature founded on them, we have before had occaſion to remark, are by no means ſo unequivocally eſtabliſhed, as to command univerſal aſſent, or to preclude the probability of their being yet obliged to undergo eſſential modifications. The compoſition of water, a fact, as it ſeemed, ſo clearly demonſtrated, ſtill preſents difficulties, even to the favourers of the new ſyſtem: and that oxygen is really the principle of acidity, remains alſo to be proved; ſince there are acids which have not yet been decompoſed, and in which the exiſtence of oxygen, therefore, reſts only on analogical proof: and, on the other hand, the ſulphurated hydrogen gas, which preſents ſome of the moſt ſtriking characters of acidity, that of reddening vegetable colours and of combining with alkalies, certainly contains no portion of oxygen.

The important ſubjects of *Light* and *Heat* have been inveſtigated with ardour, and many intereſting reſults have been obtained. The experiments of Dr. Herſchell, ſeconded by thoſe of Sir H. Engleſield, ſhewing that the luminous and calorific rays, as obſerved in the ſpectrum of the priſm, are by no means proportioned to each other, and that even the moſt powerfully heating rays are totally deſtitute of illuminating properties, ſeem to demonſtrate an eſſential difference in the nature of *Light* and *Heat*. At the ſame time they appear to be very intimately related, ſince an accumulation to a conſiderable degree of either is accompanied invariably with the preſence of the other. The apparent reflection of *cold*, as obſerved in the experiments of M. Pictet and others, is a circumſtance the moſt curious and puzzling; and ſhews, that our notions on the ſubject are ſtill vague and unſatisfactory.

The late experiments on animals with the Galvanic pile are of a very intereſting kind, and promiſe to throw light on the nature of the living functions. It has been ſatisfactorily ſhewn, too, that

the

the Galvanic phenomena take place in animal bodies, independent of external agency. It is rendered exceedingly probable, that the electric matter is ſo diſtributed through the nervous and muſcular parts of animals, as, under certain circumſtances, to become an agent in exciting the latter to contraction. We are far, however, from imagining, with ſome, that any inſight is by this means afforded us into the nature of the living principle itſelf, or even its mode of acting. Allowing that the Galvanic, or electric, fluid be the ſtimulus which excites muſcles to contract, the power which puts the former in motion, and diſpoſes the latter to be acted on, is ſtill unknown. We perceive effects only, and thoſe probably remote ones. To detect, however, one new link in the chain of nature, is highly gratifying, and may probably lead to important practical uſes.

Practical Medicine has not been ſtanding ſtill. In different branches, could we go into detail, improvements of no ſmall moment might be pointed out. The hiſtory of medicine has been extended by the obſervation of practitioners in different parts of the globe. The Egyptian expedition has afforded opportunities for inveſtigating peſtilential diſeaſes, as well as thoſe which are endemic in that quarter of the world: one of the moſt ſtriking of theſe is the ophthalmia, which, there ſeems reaſon to believe, is endued with contagious properties. It is a ſubject of no ſmall curioſity, and will probably ſoon be ſubmitted to inveſtigation.

The *new metals* offer a large field for reſearch, with reſpect to their medical properties. The ground has been already broken, and we hope to ſee it aſſiduouſly cultivated. We have ſtill too many diſeaſes which defy the power of art, but which at ſome future period, by an extenſion of the materia medica, may perhaps be ſubjected to its controul. The works of Fordyce, Heberden, and Burſerius, furniſh us with the moſt valuable means of inſtruction. Their labours are the reſult of genuine obſervation, uncontaminated by idle and unfounded theories. Dr. Harriſon's remarks on the rarity of conſumptions in the Fens of Lincolnſhire, and their frequency in more elevated ſituations in the ſame county, are of no ſmall importance, and ſuggeſt ſome obvious practical rules to the phyſician.

The ſubject of *morbid poiſons* has received much illuſtration, by the facts which the vaccine inoculation has brought to light. Much, however, here yet remains to be done. The ſuſpenſion of one diſeaſe, by the artificial introduction of another into the ſyſtem, makes it not improbable, that, at ſome future period, we may diſcover a means of removing diſeaſes at preſent deemed incurable. One of the moſt ſtriking facts on the ſubject is, the diſappearance of the yaws by the preſence of ſmall-pox, in the caſe of ſeveral negroes in the iſland of Jamaica, in the Weſt Indies, in the year 1784, as obſerved by Dr. Nembhard (p. 395).

Vegetable phyſiology has alſo received material acceſſions from the labours of experimental philoſophers. The agency of light, oxygen, and the other gaſes in vegetation, has been obſerved with more preciſion than had before been done. Proofs of this will be found in various parts of the preſent volume.

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